

Canadian Public Health Journal

Devoted to the Practice of

PREVENTIVE MEDICINE

VOLUME 26

April, 1935

NUMBER 4

THE NEW CANADIAN DEATH CERTIFICATE

W. R. TRACEY

THE PHYSICIAN AND THE DEATH CERTIFICATE

R. D. DEFRIES and A. H. SELLERS

PUBLIC HEALTH IN NEW BRUNSWICK

WM. WARWICK

THE HEALTH OFFICER AND URBAN SANITATION

L. A. PEQUEGNAT

★ ★ ★ ★

PRELIMINARY PROGRAM

National Conference

Toronto, June 3, 4 and 5, 1935

Published by the

CANADIAN PUBLIC HEALTH ASSOCIATION

Editorial and Business Offices:

105 BOND STREET, TORONTO 2

Safe Milk

Brucella Abortus Infection in Relation to Milk

Undulant Fever in Ontario

Milk and its Relation to Tuberculosis

Home Pasteurization of Milk

Dairy Farm Inspection

Epidemics due to Milk-borne Infection

The Nutritional Value of Pasteurized Milk

Model Milk By-laws

The Extent of Pasteurization in Canada

Clean Milk Bottles

Sanitary Caps for Milk Bottles

Improper Pasteurization

Common Defects in Pasteurizing Plants

Pasteurizing Equipment for Small Dairies

..... These and other aspects of milk production
are discussed in

"ESSENTIALS IN THE PRODUCTION OF SAFE MILK"

a fifty-two page reprint designed to serve as a handbook
for the guidance of the medical officer of health.

Single copies 35 cents
(3 for \$1.00)

In quantities of :]

10 to 24, each - - 25 cents

25 or more, each - 17 cents

~ ~ ~

CANADIAN PUBLIC HEALTH ASSOCIATION

165 BOND STREET

TORONTO 2, ONTARIO





The New Canadian Death Certificate

W. R. TRACEY, B.A.

*Chief, Vital Statistics, Dominion Bureau of Statistics,
Ottawa*

FOR some years the medical profession and those concerned with the recording of mortality statistics have felt the need for a revision of the Canadian Standard Certificate of Death. As a result of the hearty co-operation of all concerned in this important matter, the whole certificate, civil and medical, has been carefully revised and a new form prepared. The new certificate is being distributed this year for use throughout Canada. In several of the provinces this distribution is already under way.

It is of interest to recall that the old certificate was introduced at the time of the establishment of Canada's national system of vital statistics in 1920. The adoption of a standard certificate and the co-operation of the Provincial Registration Departments with the Dominion Bureau of Statistics have made possible the development of Canadian mortality statistics. The medical certificate adopted represented the most advanced views at that time in asking for not only the "cause of death" but "contributory causes" as well, and in providing for a statement of the duration of each. The increased attention, however, which has been directed to mortality statistics throughout the world in recent years led to a demand for a more satisfactory statement of the cause of death by the physicians because the forms in use failed to give the physician the opportunity to state clearly his opinion.

As early as 1925 a recommendation was made to the Health Section of the League of Nations by a committee reporting on this matter that the form of the questions relating to cause of death on the medical certificate be so worded as to permit the physician to state clearly the relationship which exists between the causes given by him and to distinguish those morbid conditions which, in his opinion, brought about death from other morbid conditions. A recommendation similar in principle was made by the Committee of the International Institute of Statistics which met in 1927 to formulate the Preparatory Report for the revision of the International List. The Commission revising the International List in 1929 expressed approval of the principle, although, for reasons of expediency, it did not recommend a particular form of certificate. In 1927 a new certificate incorporating these recommendations was introduced in England and Wales, and in 1930 the United States adopted a new form differing from that introduced in England and Wales but resembling it in asking the certifying physician to distinguish between the train of diseases

which led to death and any independent contributory cause which he considers important.

In Canada, as early as 1929, Mr. E. S. Macphail,* Chief of the Division of Census and Vital Statistics in the Dominion Bureau, corresponded with the Provincial Departments concerning the possibility of a change in the form of the medical certificate. Copies of the new forms in use in England and Wales and of the suggested certificate in the United States were discussed. Further consideration was given to the subject by the Dominion Bureau and in 1933 it was considered desirable to proceed with the preparation of a new certificate. At this time the Canadian Public Health Association, through the Section of Vital Statistics, expressed its willingness to assist in furthering the preparation of the new certificate. Similar co-operation was extended by the Department of Epidemiology and Biometrics in the School of Hygiene, University of Toronto. A committee was formed by this department to study the certificate from the physician's standpoint. In March, 1934, the findings of this study were presented to the Dominion Bureau of Statistics. As a result of a conference, tentative recommendations were approved, which were discussed later with the Department of National Health, and certain suggestions incorporated. The Section of Vital Statistics of the Canadian Public Health Association was represented by Dr. Eugene Gagnon, Chairman of the Section.

The committee was formally appointed by the Canadian Public Health Association and its membership extended to include provincial representation. It was asked to consider the civil as well as the medical portion of the certificate. At this time Mr. Macphail communicated to the Provincial Departments the progress which had so far been made and requested their suggestions and opinions. The recommendations of the committee were presented at the annual meeting of the Canadian Public Health Association held in Montreal in June, 1934, and were adopted by the Association. These recommendations were received by the Dominion Bureau and presented to a meeting of the Provincial Departments, being accepted with certain minor changes and receiving also the approval of the Department of National Health.

Form of the New Certificate

Essential information required in the registration of deaths falls naturally into two categories, civil and medical. As the accompanying article by the committee of the Canadian Public Health Association presents the medical certificate, reference is made only to the changes in questions appearing on the civil side of the form. As physicians are sometimes called on to complete the whole certificate, mention is therefore made of the following changes.

Length of Stay.—Previous confusion in regard to the information desired is avoided by the new wording, "Length of stay in city, town, or township, where death occurred."

Residence of Deceased.—Mortality statistics for municipalities can never be

*Mr. Macphail retired in January, 1935. He had taken a very important part in the establishment of the National System of Vital Statistics, and it was a happy circumstance that he was able to carry the introduction of the new death certificate through to completion before his retirement.

reliable as long as no correction is made for persons dying in local hospitals, whose place of abode is outside the local area. A clear and precise statement of residence is therefore of great importance and, to facilitate this, residence has been definitely stated on the revised form to mean "usual place of abode, post office address for residents in rural parts not sufficient."

Nationality of Deceased.—By this is meant citizenship. The insertion of this question before "Racial Origin" assists in clarifying the meaning of "Racial Origin" and removes any resentment on the part of those who might object to the latter question.

Occupation of Deceased.—Two questions have been added to this section which, it is thought, will ultimately prove of value to medical statistics, e.g., in the case of diseases which might be industrial. These questions are "Date deceased last worked at this occupation" and "Total years spent in this occupation."

These changes in the questions on the civil side of the death certificate will provide additional information of value to the state and to the medical profession, and will assist in improving the reliability of mortality records as an index of the differential incidence of disease.

The steps by which the new certificate has been developed are an illustration of the co-operation accorded to the Dominion Bureau of Statistics by the medical profession, the Provincial Health and Registration Departments, the Department of National Health and and the Canadian Public Health Association in a common purpose.

REPORTED CASES OF CERTAIN COMMUNICABLE DISEASES IN CANADA*
BY PROVINCES—JANUARY, 1935

Diseases	P.E.I.	Nova Scotia	New Brunswick	Quebec	Ontario	Mani- toba	Saskat- chewan	Alberta	British Columbia
Diphtheria.....	2	17	3	92	46	50	15	4	2
Scarlet Fever..	6	29	37	717	760	123	69	59	135
Measles.....	—	421	245	1710	2201	2126	2646	40	135
Whooping Cough.....	—	7	257	618	615	94	105	16	158
German Measles.....	—	80	—	24	428	2	1	4	21
Mumps.....	—	33	1	127	968	96	3	17	106
Smallpox.....	—	—	—	—	—	—	—	—	—
Cerebrospinal Meningitis..	—	3	—	2	5	1	—	—	3
Anterior Poliomyelitis	—	—	—	1	6	—	1	1	8
Typhoid Fever	—	3	2	99	9	18	1	2	—
Trachoma.....	—	—	—	—	—	—	—	—	2

*Data furnished by the Dominion Bureau of Statistics, Ottawa.

The Physician and the New Canadian Death Certificate*

R. D. DEFRIES, M.D., D.P.H., and A. H. SELLERS, B.A., M.D., D.P.H.,*

*Department of Epidemiology and Biometrics,
School of Hygiene, University of Toronto*

EVERY physician appreciates in a general way the importance of the collection, tabulation and analysis of mortality returns but it is only when he desires the facts relating to a specific disease that he appreciates the serious limitations which surround the obtaining of reliable statistical data. As a medical student, he may have used, in answer to examination questions concerning the value of vital statistics, such terms as "the bookkeeping of public health" or "the appraisal of our progress in medicine" without a realization of his dependence on such statistics in everyday practice. In such a practical question as the value of insulin, consideration must be given the mortality from this disease in the years prior to insulin and after its general use. At once the reliability of the data must be considered before any conclusions can be made. The data may not be reliable because the form of the certificate has not elicited from physicians satisfactory statements. If several causes of death are entered on the certificate, rules of practice for the selection of the one cause which is to be tabulated must be used by the recording bureau. These rules are not uniform in various countries and are subject to change from time to time in any country. It is not surprising, therefore, that efforts have been made in several countries during recent years to improve the form of the certificate of death, with the object of obtaining from the physician a clear statement of his opinion of the cause of death.

The value of our death statistics depends, therefore, on their portraying accurately the related facts, particularly the medical findings. Accurate mortality records are of great sanitary importance and progress in medicine and public health has been substantially aided by knowledge derived from statistics of causes of death. Next to the birth certificate, the death certificate is the most important record made of man. In future, further guidance in public health will, as in the past, come from these records and it is of great importance that effort be made to improve the reliability and accuracy of statements on the medical certificate.

The achievement of this aim depends on the physician understanding clearly the questions relating to cause of death on the certificate and the general principles of death certification. It is essential also that the physician's statement be as complete and as accurate as is possible for it must be remembered that our statistical mortality data *can never be more accurate than the statements of the medical practitioners.*

**For the Committee on the Certification of Causes of Death, Section of Vital Statistics, Canadian Public Health Association.*

DEFECTS AND DIFFICULTIES OF THE OLD STANDARD FORM OF
MEDICAL CERTIFICATE

The form of the questions relating to the cause of death on the old certificate is, in general, that which was used in Great Britain and the United States for many years. Following a committee's report to the League of Nations Health Committee in 1925, steps were taken in Great Britain and the United States to prepare a new certificate. Such was introduced in England in 1927 and in the United States in 1930. As previously stated, the effort in each country in preparing a new certificate has been directed particularly towards a rewording of the physician's statement of cause of death to avoid the confusion which arises out of the use of the terms "cause of death" and "contributory causes". Although efforts had been made to clarify the situation by defining for physicians the term "cause of death" as the disease or injury which initiated the train of events leading to death, much confusion has continued to arise. In reply to the question "cause of death", physicians were still prone to record the terminal condition rather than the cause so defined. The use of such adjectives as "primary" or "underlying" has not been satisfactory in conveying to the physician what is desired if a true picture of the mortality experience is to be presented.

The truth of this is indicated by the large number of medical certificates which have been found unsatisfactory when first submitted. The number returned for additional information has frequently been in excess of one out of every ten certificates received. This situation has arisen in part out of the unsatisfactory form of the old medical certificate.

These defects may be summarized as follows:

(1) The precise meaning of "cause of death" and "contributory cause" was not clear. The confusion which has arisen may be illustrated by a death from peritonitis following appendicitis. In such cases, physicians often merely state peritonitis as cause of death on the medical certificate without mention of its origin. These certificates are usually returned for additional information as to the cause of the peritonitis. In this particular case, of course, the proper classification would be to appendicitis. Further, in the case of a child with measles, dying of bronchopneumonia, many physicians record bronchopneumonia as the "cause of death", whereas, in accordance with the definition of cause of death given above and to obtain a true picture of measles mortality, the death must be classed to measles.

(2) It did not distinguish satisfactorily between contributory causes which are *related* to the disease causing death ("the disease or injury which initiated the train of events leading to death") and those which are considered *contributory* factors but *independent* of the disease causing death. For example, if the physician recorded three morbid conditions, one of which was a complication or sequela of another and the third was an entirely independent disease, no provision was made in the wording of the physician's medical statement to permit the physician to express clearly his opinion on this essential point.

(3) It failed to elicit specifically the necessary information concerning violent and accidental deaths and did not ascertain the possible puerperal character of the death.

THE NEW STANDARD CERTIFICATE

Realizing the importance of the introduction of a new form, steps were taken in 1929 by the Dominion Bureau of Statistics to obtain the opinions of the provincial authorities as to the form of a new certificate.

Although it may seem a relatively simple matter to formulate the questions as to the cause of death in a manner that will clearly present to the physician the exact information desired for accurate medical statistics, the experience of committees in various countries which have studied this question indicates that it is a very difficult problem. Appreciating the necessity of having this matter carefully considered by members of the medical profession and with the hope that as a result of a careful study and trial some suggestions might be offered to the Dominion Bureau of Statistics and the provincial authorities in formulating a new certificate, a committee was appointed in the fall of 1933 with the co-operation of the Department of Epidemiology and Biometrics of the School of Hygiene, University of Toronto. This committee subsequently was formally established as the Committee on the Form of the Medical Certificate of the Vital Statistics Section of the Canadian Public Health Association.

Careful study was given to certificates in use in various countries and several trial certificates were prepared. These were submitted to trial through the co-operation of a group of seventy-five physicians in Ontario and the superintendents of various hospitals in Montreal and Toronto. As a result, the committee made a detailed report to the annual meeting of the Canadian Public Health Association in Montreal in June, 1934, with the recommendation that the form of the questions relating to the cause of death adopted in England and Wales was, in their opinion, most satisfactory. The additional questions on the medical certificate were likewise recommended as essential to the proper recording of the death from a medical standpoint.

Following a conference of the Dominion Bureau with representatives of the provincial authorities, the recommended form of the certificate was accepted by all the provinces with minor changes. The new Canadian certificate has already been distributed for use in several of the provinces and in others the new certificate will be in use before the close of the year.

The new form which has been adopted for use is clear and logical and embodies all the considerations which experience has shown to be necessary to the intelligent selection of a single cause for tabulation in a clear and logical manner. The form of the questions relating to cause of death resembles very closely that on the medical certificate which has been in use in England and Wales since 1927, and embodies the general plan of the form suggested by a sub-committee of the Health Committee of the League of Nations in 1925. This new form establishes beyond doubt (if it is not misused), the two relationships between causes which are of value in vital statistical practice, namely, (1) relationship of causation and (2) relationship of importance. Unlike the old form, therefore, a statement of duration, which can so infrequently be given accurately by the attending physician anyway, is unnecessary. It also effectively separates contributory causes such as complications (e.g., gangrene in diabetes), from independent contributory causes such, for example, as chronic nephritis.

The certificate is divided roughly into two parts, civil and medical. The former contains all necessary data concerning age, sex, date and place of birth, racial origin, nationality, occupation, etc. The medical side of the form furnishes space for a statement of cause of death and ancillary questions relating to pregnancy, surgical operations and deaths from violent or accidental causes.

(a) *The Civil Side of the New Certificate*

The facts recorded on the civil side of the certificate are of great legal and social importance. Besides this, certain of them are specifically of medical interest. Age, sex, race, occupation and place of residence are all variables which play a definite part in the epidemiology of disease. As in diabetes, for example, these facts are of great value to the medical profession and when studied along with the causes of death provide invaluable information on the differential incidence of disease.

(b) *The Medical Certificate*

The outstanding change in the new medical certificate of death is the form of the questions relating to the cause of death. The section of the certificate bearing on these questions is reproduced on page 164.

The morbid conditions relating to death are divided on the certificate into two groups. In Group I are those related to the "immediate cause" of death, and in Group II those not causally related thereto.

In a large number of cases only one cause of death will need to be stated. Where, however, two or more are entered, the confusion which formerly arose between "cause of death" and "contributory" or "secondary cause", need not now occur. The procedure in certifying cause of death on the new form may be outlined as follows:

(a) Name first the "immediate cause" of death, i.e., the disease, injury or complication which caused death (not mode of dying or terminal condition). This is statement (a) under Group I.

(b) Then give other morbid conditions (if any) of which it (a) was the consequence in order of causal relationship, stating the most recent one first and then others in order, (b) and (c) under Group I.

(c) Entries under Group II should be reserved for "other important contributory morbid conditions" in those instances particularly in which death was due to a combination of maladies, none of which would have been fatal alone. In such cases, the physician's judgment alone can afford guidance to the tabulator.

In this connection, it is emphasized that only those morbid conditions which in the mind of the physician were actually important contributory factors, should be recorded. For example, if a patient who has pernicious anaemia but is on adequate liver therapy and is not experiencing any disadvantage due to his disease, subsequently dies of coronary thrombosis, or cerebral haemorrhage, there is nothing to be gained by entering the pernicious anaemia even as an unrelated

contributory cause. It is much more important to record a hypertension or chronic degenerative myocarditis if such were present.

MEDICAL CERTIFICATE OF DEATH		
23. DATE OF DEATH	(Month).....	(Day)..... (Year).....
24. I HEREBY CERTIFY that I attended deceased from:		
..... 19..... to..... 19.....		
and last saw h..... alive on..... 19.....		
CAUSE OF DEATH		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>I Immediate cause Give disease, injury or complication which caused death, not the mode of dying, such as heart failure, asphyxia, asthenia, etc.</p> </div> <div style="width: 50%;"> <p>(a)..... due to</p> </div> </div>		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause).</p> </div> <div style="width: 50%;"> <p>(b)..... due to</p> </div> </div>		
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>II Other morbid conditions (if important) contributing to death but not causally related to immediate cause.</p> </div> <div style="width: 50%;"> <p>(c).....</p> </div> </div>		
25. If a woman, was the death associated with pregnancy?		
26. Was there a surgical operation? Date of operation 19.....		
State findings		Was there an autopsy?
27. If death was due to external causes (violence) fill in also the following:—		
Accident, suicide or homicide?		Date of injury 19.....
(State which)		
Manner of injury		(How sustained)
Nature of injury		
Specify whether injury occurred in industry, in home, or in public place		

FIGURE I

The way which the questions relating to cause of death on the new certificate should be answered, and the value of the new certificate in presenting clearly the physician's opinion of the cause of death, are illustrated by the following examples.

Example I

A patient in whom a provisional diagnosis of carcinoma of the large bowel had been made, was operated upon and a resection done. Erosion having occurred prior to operation, acute diffuse peritonitis developed and the patient died three weeks after operation.

The new certificate would elicit the information that peritonitis followed operation for carcinoma of the large bowel. As there were no other contributory morbid conditions in this case, no statement under II is needed, thus:

CAUSE OF DEATH	
I Immediate cause Give disease, injury or complication which caused death, <u>not</u> the mode of dying, such as heart failure, asphyxia, asthenia, etc.	(a) <i>Acute diffuse peritonitis</i> due to (b) <i>Carcinoma of transverse colon</i> due to (c) _____
II Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause).	
III Other morbid conditions (if important) contributing to death but not causally related to immediate cause.	

FIGURE II

The importance of qualifying all tumours (1) as to malignancy or non-malignancy and (2) as to their site, is appreciated by all physicians but is frequently omitted, requiring the return of the certificate for such information.

Example II

When two or more independent morbid conditions are present, the ambiguity of the old form was even more serious. If a patient has both diabetes and tuberculosis, the physician is the only one in a position to say which of these two actually should be recorded as the cause of the death of his patient. Such being the case, the varying interpretation of cause of death and contributory cause on the old form led to much confusion as some physicians would enter under "cause of death" the same statement which others would place under "contributory cause".

The new certificate offers a solution of this problem for it places entirely on the physician the choice of the major cause—major in the sense that he feels it to be the one deserving tabulation as cause of death in the records. The following example illustrates these points.

A patient who for a number of years had chronic nephritis developed a strangulated inguinal hernia and was operated upon for this condition. Some time subsequent to the operation, he developed bronchopneumonia and died.

Presuming that the physician felt that the chronic nephritis was an important factor in this case but that the strangulated hernia was of first importance, the medical certificate of cause of death would appear as follows:

CAUSE OF DEATH	
I Immediate cause Give disease, injury or complication which caused death, <u>not</u> the mode of dying, such as heart failure, asphyxia, asthenia, etc.	(a) <i>Bronchopneumonia</i> due to (b) <i>Operation</i> due to (c) <i>Strangulated inguinal hernia</i>
II Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause).	
III Other morbid conditions (if important) contributing to death but not causally related to immediate cause.	

FIGURE III

The significance of "due to" is largely one of time relationship, implying causation in this broad sense.

Example III

Confusion also has arisen frequently regarding accidental deaths. The new certificate assists the physicians, coroners and medical examiners in giving a clear statement in such cases:

An old lady accidentally fell while walking across the street, fracturing the neck of the right femur. She had adenomata of thyroid without hyperthyroidism and generalized arteriosclerosis. Ten days after the fall, the patient developed bronchopneumonia and died shortly afterwards.

The adenomata of thyroid clearly have no part in the picture. Neither probably had the arteriosclerosis except in so far as age *per se* is concerned. The attending physician alone could decide this point. But the immediate cause of death was the bronchopneumonia and it clearly must be considered to be consequent upon the fracture of the femur and confinement in bed and this in turn "due to" the accidental fall. The medical statement of cause of death would then be as follows:

CAUSE OF DEATH	
I Immediate cause Give disease, injury or complication which caused death, not the mode of dying, such as heart failure, asphyxia, aethenia, etc.	(a) <i>Bronchopneumonia</i>
II Morbid conditions, if any, giving rise to immediate cause (stated in order proceeding backwards from immediate cause). Other morbid conditions (if important) contributing to death but not causally related to immediate cause.	due to
	(b) <i>Fracture of femur</i>
	due to
	(c) <i>Accidental fall on street</i>
	<i>Generalized arteriosclerosis</i>

FIGURE IV

The procedure in certification may then be summarized briefly thus: If the physician feels that all the essential features of his case can be presented in a single statement, this is entirely satisfactory. Such a statement is made under heading I, on the first line designated (a). If, however, such a simple statement is not adequate, he has the opportunity of recording further information, either on lines (b) and (c) under heading I, or under II, according as the conditions to be recorded are respectively of related or independent origin in so far as the first statement (on (a)) is concerned. This information is sought so that the selection of the cause for tabulation may be made in the light of the certifier's viewpoint.

It is, of course, essential that physicians be familiar with accepted medical terms as used in the International List of Causes of Death. To facilitate this, the Dominion Bureau has issued a Pocket Reference and is now preparing a small reference manual as a ready guide to the proper use of the new certificate.

Supplementary Medical Questions

In respect of the remaining questions of the medical certificate, the following brief explanation may be of value.

Pregnancy and Childbirth.—Wherever pregnancy or parturition is or has been, in the opinion of the attending physician, a contributory factor of importance in the fatal outcome, the nature of the conditions should be given in the statement of cause of death. All diseases resulting from childbirth, miscarriage or abortion should be qualified by the word "puerperal" so that no ambiguity may arise, e.g., "puerperal septicaemia". Septicaemia following childbirth and that following abortion should be distinguished. The question "If a woman, was death associated with pregnancy?" serves to supplement the preceding statements or, where the death is not certified to a puerperal cause but pregnancy or parturition preceded death, it secures the opinion of the doctor as to any possible association.

Surgical Operations.—It is desirable to know whether or not the death was associated with an operation and to know the condition for which the operation was undertaken, as well as the findings at operation, so that death may be attributed to the proper cause.

Violent and Accidental Deaths.—It is essential that it be clearly stated whether the death was due to accident, suicide or homicide and to state the manner of occurrence and nature of injury. The data here again supplement that given in statements of cause of death.

Achieving the Objective

To make Canadian mortality statistics a more accurate expression of the opinions of the medical practitioner respecting causes of death, the importance of each individual death certificate must be realized by the profession. If the physician clearly understands the simple principles on which the questions relating to cause of death on the new form are based, as illustrated by the examples presented in this article, he will not only find certification of deaths simpler and more satisfactory, but he will find that it gives him the opportunity, not heretofore possible, of expressing clearly his opinion as to the cause of the death of his patient.

With the hearty co-operation of the profession, the new certificate will fulfil its purpose.

The Development of Public Health in New Brunswick

WM. WARWICK, M.D., D.P.H.

*Chief Medical Officer and Registrar-General
Department of Health, Fredericton*

DURING the period of the French occupancy of that part of Acadia which later became the Province of New Brunswick, from 1604 to 1763, the settlements of white people were very small and scattered. History does, however, reveal some things of public health interest, such as the severity of scurvy among the crews of Champlain and DeMonts who wintered on St. Croix Island at the entrance to the Bay of Fundy in 1604-6; the epidemic of what was probably haemorrhagic smallpox amongst the Indians of Maine and Acadia in 1694, and the occurrence of an epidemic believed to have been typhus which is alleged to have carried off one-third of the Micmac Indians of Acadia.

From 1763, when Acadia was ceded to the British, until 1784, when New Brunswick became a province separate from Nova Scotia, the influx of settlers was at first rather small, but in 1783, with the coming of the Loyalists in their thousands, settlements became more numerous, while in some instances what were small settlements became good sized towns almost at once.

When New Brunswick was made a province in 1874 the population was about 16,000, scattered mostly along the coast and up the various river valleys, the waterways being at first the only means of transport.

What is now the city of Saint John, from a settlement of seventy persons, became, soon after the landing of the Loyalists, a town of 3,000 persons, and rapidly developed a commerce, not only with the states to the south but also with the West Indies and the Old Country. It is obvious, therefore, that in a short time the new province experienced difficulties through the introduction of communicable diseases from these various countries, and such diseases in those days were not of a class to be considered lightly. Smallpox, typhus, cholera, yellow fever and other grave diseases were well enough known in the countries of both the Old and the New World to warrant measures being taken to prevent their introduction.

In 1796 the Legislature passed what was probably the first public health measure, "An Act to prevent bringing infectious distempers into the City of Saint John". Apparently this Act was found "ineffectual" since it was repealed in 1799 and a new Act passed. This new Act was to deal with "yellow fever, putrid bilious fever or other pestilential or contagious distempers" and was largely an attempt, by means of what is generally understood to-day as maritime quarantine measures, to prevent the introduction of these grave diseases. Smallpox which was epidemic in Boston and the New England States from 1788 to 1792 was in all probability one of the chief hazards of that early period of the province's history.

In 1812 there was passed "An Act more effectually to provide for the public

registering of all marriages solemnized within the province", indicating that there had been previous legislation respecting this subject. That this is so, is borne out by the fact that there are in existence in Fredericton civil records of marriages performed in the county of York as far back as 1796, but such records cannot be found for other parts of the province for such an early date.

Emigration from the Old Country began in 1816 and went on increasing for many years, the records showing that in 1822 there were 900 such immigrants, "mostly destitute", arriving in Saint John, while in 1826 there were 3,000 such, "destitute and victims of disease". It is most likely that some of these persons were the victims of what is now known as typhus, for in the following year cases of that disease were reported as occurring on the Miramichi, N.B., and in Halifax, N.S., but it was not until twenty years later that the province felt the full effects of that particular disease.

Once more, in 1829, the Legislature repealed "all the Acts now in force relative to the importation and spreading of infectious distempers in the City of Saint John". It would seem evident from the wording of the title, where the words "and spreading" were used following "importation", that the quarantine restrictions were not effective in keeping disease from being introduced and it was deemed necessary to extend the scope of the Act. Again in 1830 and 1831 minor amendments were made to this Act.

In 1832 there was passed the first Act dealing with water supplies, "An Act to incorporate the Saint John Water Company". Hannay in his *History of New Brunswick* says:

"This was the beginning of an improved system of supplying that City with good water. Before that time wells were the only resource and as a result much impure water was drunk, to the detriment of the health of the inhabitants. The trouble was aggravated by the fact that Saint John was much exposed to contagion from vessels arriving with immigrants who were diseased. Malignant fevers such as typhus, a result of bad food and bad sanitary arrangements, were very prevalent and great difficulty was experienced in meeting the demands that were made upon the local authorities for medical assistance."

The exact date when Partridge Island at the mouth of the Harbor of Saint John was first used as a quarantine station is not clear but in any case the accommodations at first were extremely primitive. Had there been then available our present day knowledge that typhus is a louse-borne disease, even primitive delousing methods would have been quite effective in preventing the spread of this disease.

Asiatic cholera, which had been introduced into Canada through the St. Lawrence the previous year, caused considerable apprehension in New Brunswick so that the Legislature in 1833 once more amended the Act relating to quarantine at Saint John and further provided "for the establishment of boards of health in the several counties". These boards, even if established, seem to have been and were but temporary institutions. In any case the threat of cholera did not become an actuality.

At this time the population of the province was almost 120,000, with Saint John and its suburb Portland totalling 18,000, and apparently health matters were being given very serious consideration, for in addition to the statutes already mentioned as being passed in 1833, there was passed "An Act to prevent

Nuisances within the City of Saint John". One of the first sections of this Act dealt with persons who coasted or rode down any of the hilly parts of the city and provided as a penalty that "it shall and may be lawful for the Mayor or any one of the Aldermen or any of the Justices of the Peace, etc., to seize, take and destroy the said sled or vehicle". The next section provided for the seizure and destruction of any "bad or unwholesome dead meat, poultry or other provisions sold or exposed for sale". It seems rather odd, at this time, that these two offences should be considered as of apparently equal importance but we must remember that in early days City Fathers stood much on their dignity, and in such a hilly city as Saint John, with sliding the principal winter sport, it was not always possible to maintain an upright position.

Further nuisance prevention legislation was passed in 1837, covering the running at large of hogs, cattle, horses and dogs; and in 1844 to provide for a privy for every house. The preamble to this Act brings very forcibly to notice the fact that through the very rapid growth of population, houses were often being built upon the whole of the available lot of land, and with the lack of sewers the streets were sometimes "encumbered with noxious and offensive matter, and the air rendered impure and injurious to health and annoying to passengers". In connection with the enforcement of this Act it was provided that "the Grand Jury, two members of the Common Council or persons appointed by them" had power to enter any premises and inspect the same—the beginning of sanitary inspections.

The care of the insane, or lunatics as they were designated in those days, was before the Legislature as early as 1824 when there was introduced "an Act to provide safekeeping of lunatics whom it might be dangerous to be at large". Apparently the Act did not provide for the erection of an asylum, and it was not until 1836 that such an institution was established in a small hospital built in 1832 for use as a cholera hospital. This was continued until 1848, when the new asylum, which was the beginning of the present Provincial Hospital, was occupied.

That chapter in the public health history of New Brunswick which deals with leprosy is one which fortunately is not duplicated in any other province. First recorded in 1815 along a limited piece of the coast line in the counties of Gloucester and Northumberland amongst the early French settlers, it continued to spread locally and about 1832 there is a record of legislation to deal with this problem, there being one or more boards of health provided for that purpose. Further legislation was passed in 1844 following a presentment made by a Grand Jury and in that year the first lazaretto was established on Sheldrake Island and five years later removed to the mainland at Tracadie. In 1850 an Act, of considerable length, was passed, its preamble reading:

"Whereas a loathsome disease, supposed to be a species of leprosy, has been for several years slowly extending itself among the French population on that part of the Coast of the County of Gloucester immediately adjoining the County of Northumberland, at Tracadie, and also in parts of the said County of Northumberland; and it is therefore deemed absolutely necessary that measures should be adopted to prevent the further spread of the said disease, and as far as possible to relieve the unfortunate individuals infected with the same"

This Act gave very extensive powers to the Board of Health, not only to take over the existing lazaretto and manage it but especially as to the commitment of those infected. Heagerty in his *Four Centuries of Medical History in Canada* quotes from a letter of Lieutenant-Governor Gordon in 1863 to the Duke of Newcastle as follows:

"The attention of the Provincial Legislature was first called to the subject about thirty-one years ago and from time to time subsequently stringent Acts have been passed directing the seclusion of lepers and empowering the members of a Board of Health nominated by the Governor-in-Council to commit any leprous person to custody in a building called by courtesy a leper hospital, but which until late years was little better than a mere prison."

Those in authority in those days must have been rather optimistic as to the results of their legislation for this Act of 1850 was to be in force for but two years, then was extended for five years but was still in effect when the Federal Government took over the lazaretto in 1879.

Following the appointment of Dr. A. C. Smith as Superintendent in 1865 and the taking over of the nursing by Sisters from the Hotel Dieu, Montreal, in 1868, a new era seems to have been established and though progress in its eradication was very slow for many years, the disease has finally disappeared from among the people of the province. While segregation in itself, no doubt, played a considerable part in bringing about this happy result, it seems very evident that the other important factor was the intensive search for possible cases among the population in the area carried on so actively by Dr. Smith and his successors, a policy which to-day is considered so essential in the control of tuberculosis.

In the Forties immigrants, particularly from Ireland, continued to pour into the province. In 1846 9,000 landed at Saint John and in 1847 almost double that number. Those charged with the care of the public health quickly found themselves confronted with a task which even in these days would seem enormous. Fifteen thousand immigrants were landed at Partridge Island Quarantine, 800 having died of typhus during the voyage; 600 died on the island while almost an equal number succumbed in a hospital in the city, and doubtless many others perished also. During the same summer this disease was introduced into the Miramichi; 300 passengers arrived, 100 having died on the voyage, and 25 bodies were buried shortly after arrival.

It is hard to visualize conditions as they were in those days. What with almost total lack of facilities, with overcrowding, filth and destitution, the emergency had to be met and handled as best it could be. That the boards of health were largely temporary affairs or at least became more or less moribund between epidemics seems apparent, since in the following year "An Act to revive, continue and amend the Act for the Establishment of Boards of Health in the Province" was passed. Possibly one of the reasons why these boards ceased to function for very long was due to the fact that they were not provided with funds, as it was expressly laid down that there should be "no expenditure until sanctioned by the Governor-in-Council".

Between 1825 and 1852 there had been a public water supply provided for

parts of the city of Saint John by a private company, and in 1852 the Act was amended "for the purpose of furnishing to the poor of the City a gratuitous supply of water". For this purpose "suitable tanks, not exceeding six in number, which shall be filled daily for free use of the poor" were to be provided. If fountains or hydrants were provided there should be "free flow for two hours each day".

In 1854, but seven years after the typhus outbreak, New Brunswick suffered from a scourge of Asiatic cholera, introduced from Europe through the port of Saint John. Hannay, in his *History of New Brunswick*, states:

"At that time the sanitary condition of that City (Saint John) was as bad as possible, very large numbers of people were crowded together in lanes and alleys, and no provision seems to have been made for getting rid of the filth which such crowded conditions brought about. The water supply was very imperfect and most of it was obtained from wells. There were no sewers worthy of the name, and no system of sewerage had even been dreamed of. It was thought that the position of Saint John, set high on a rock and swept by every breeze from the Bay of Fundy, would alone secure it from the ravages of a pestilence, but this belief proved to be entirely fallacious. No city was ever worse prepared to meet the cholera than Saint John was in 1854, and no city was ever more heavily struck by that dread disease. During the whole summer the cholera raged with unparalleled fury and the people died so fast that it was found difficult to bury the dead. In the City and its suburb, Portland, which had between them less than 30,000 inhabitants, 1,500 persons died with cholera, about one person in every twenty.

"There were outbreaks of cholera in other parts of the Province, numbers dying at Fredericton, Miramichi, Woodstock, St. Andrews and other places, but these visitations were slight compared to that which came to the chief commercial city in the Province and for the time paralyzed its industries."

That the authorities had profited by the experience of the typhus and cholera epidemics is shown by the Acts of the Legislature passed within the next few years. In 1854 commissioners of sewage and water were appointed for Saint John and from this time on progress seems to have been steadily made in providing adequate services of this nature. In 1855 a new Act to establish a board of health in the city and county of Saint John was passed and Dr. Wm. Bayard was appointed the first chairman and continued in that capacity until 1887. Under this and succeeding acts such board has been in continuous existence for almost eighty years. Dr. Bayard has been referred to as the "father of public health" in New Brunswick, and it is interesting to note that he afterward became the chairman of the Provincial Board of Health on its formation in 1887 and continued in office until 1903. He also took the leading part in advocating the establishment of a General Hospital, which was opened in 1865, and for many years served as chairman of its Board of Commissioners.

In the Consolidated Statutes of 1877 Chapter 104 is entitled "The Public Health", and under this Act extensive powers were vested in the Governor-in-Council, while other sections dealt with boards of health in Saint John, Fredericton and Woodstock and special boards as well. Provision was also made for the division of costs between counties and the province.

Ten years later, in 1887, the Public Health Act provided for a provincial board of health, with division of the province into health districts with a board

of health in each. This Act was quite a comprehensive one. While many boards of health were appointed, finally about twenty-six, those outside the cities seem to have functioned more or less irregularly and mostly in suppressing outbreaks of smallpox, which were quite numerous.

Scientific methods of control of disease were now coming into vogue and until the end of the century such matters as compulsory vaccination, the use of diphtheria antitoxin, more rigid quarantine methods, establishment of public water supplies and sewerage systems seem to have occupied the attention of the Provincial Board and larger local boards throughout the province. About 1899 a provincial bacteriologist was appointed and provision made for the free distribution of antitoxin. Milk regulations were passed by some of the boards and other procedures along modern lines, such as tuberculin testing of cattle, were given consideration.

In 1901 and 1902 there was a serious outbreak of smallpox in the province with a high mortality rate in some parts, and during the following eighteen years the province was seldom if ever completely free of the disease.

During the period of existence of the Provincial Board of Health, the secretary, who was also Chief Health Officer for the province, was a practising physician who devoted part of his time to the duties of his office and for which he was remunerated to the extent of five hundred dollars a year. There was no central office or staff. The local boards in the cities had some full-time officials, mostly secretaries and inspectors, but it was not until 1911 that the Saint John Board had a health officer with special qualifications and he was but a half-time official. This officer was the late Dr. Geo. G. Melvin, who obtained his Diploma of Public Health from McGill University in 1912 and carried on his duties in Saint John most efficiently until 1918, when he became Chief Medical Officer for the province.

The Provincial Board of Health had no funds for health work but expenses were later paid from the Provincial Treasury and amounted usually from \$1,000 to \$1,500 a year, made up mostly by the salary of the secretary and the expenses of members attending meetings.

There seems to have been little co-operation between the Provincial Board and the local boards; some submitted annual reports, others did not. Some local boards seldom if ever met, the duties being carried on by the chairman. These local boards mostly had no funds with which to work, and when expenses were incurred it often took years before the bills were paid by the county councils.

From such reports as are available, it appears that the principal expenditures of many of the boards were incurred in suppressing smallpox, and in some instances the Provincial Government had to come to the assistance of the counties in meeting these costs. Typhoid and diphtheria were both extremely prevalent and attended with a high mortality. In the main, however, they were looked upon as inevitable, and it was not until the early years of the present century that we find serious consideration being given to the sanitary engineering problems associated with the prevention of typhoid.

Men like the late Dr. Bayard and his associates, and some of the members of the local boards, both physicians and laymen, were outstanding and held views on public health which were very advanced for those times, but apparently the system then in vogue precluded the application of the knowledge which they possessed.

In 1909 a commission to investigate the possibility of the establishment of a tuberculosis sanatorium was appointed and as a result in 1913 the Jordan Memorial Sanatorium at River Glade was opened. Two years later the municipality of Saint John opened its own tuberculosis hospital and in 1932 the third such institution, the Sanatorium Notre Dame de Lourdes near Bathurst, was established, thus giving us more than 400 beds for the care of this disease. Voluntary tuberculosis associations, both in the early days and at the present time, have been of great assistance, particularly in educating the public to the necessity of providing adequate means for the control of tuberculosis.

In 1917, when Dr. Wm. F. Roberts was elected to the Legislature and given a seat in the Cabinet as the first Minister of Health in the British Empire, he began putting into practice his ideas of what should be done in order to have an efficient health organization in the province. His first step was to have a survey made by an outside authority. In accordance with the recommendations of this report the old system was scrapped and an entirely new Public Health Act (1918) was passed, under which the Department was organized and, incidentally, within a few weeks and with only a skeletal organization, was thrust into action in the influenza pandemic of that year. Under this Act a central office was established with a Chief Medical Officer (the late Dr. Melvin). A modern public health laboratory was organized under the late Dr. H. L. Abramson, and the province divided into three health districts each in charge of a full-time health officer (District Medical Health Officer). Each health district was further divided into sub-health districts which corresponded to the counties, and each of these had a board of health of which the district medical health officer was chairman.

The sub-district boards appoint their own secretaries, sanitary and other inspectors and the sub-deputy registrars of vital statistics, who make their returns directly to the central office. At first a system of part-time medical inspection of schools covering the whole province was carried out. As it proved, on the whole, unsatisfactory, in 1922 a full-time service was inaugurated with six full-time medical inspectors of schools under the direction of the Chief Medical Officer.

Under the present Health Act, regulations dealing with the various divisions of health activities were drawn up and made applicable to the province as a whole, so that there is uniformity in this respect, although the various boards still have power to make local regulations.

One important feature of the new Act was that by which no child may attend school until it has been successfully vaccinated against smallpox. This seems to have solved the problem which eternally bothered the old Provincial

Board, namely, how to get the population vaccinated. In the past fifteen years the enforcement of this law has resulted in more than 175,000 children, or better than one-third of our total population, being protected, with the result that whereas in 1918 there were nearly 4,000 cases of smallpox in New Brunswick, for the past five years there has not been a single case.

With but minor amendments to our Health Act much progress has been made; we now have four health districts each in charge of a full-time health officer, who holds a diploma in Public Health and is also thoroughly trained in tuberculosis diagnostic methods; with six full-time medical inspectors of schools, who are also assistant medical health officers; a public health laboratory of very high standing which is also our central depot for the distribution of serums, etc., to 24 branch depots. We have also had for a number of years ten free venereal disease clinics in operation, now entirely maintained by our Department. From a small beginning our public health nursing service has made some considerable progress, and as opportunity offers, we hope to extend it considerably. Under the present system the Provincial Health Department bears about two-thirds of the total cost of public health work while the counties provide one-third.

In the beginning considerable difficulty was experienced in obtaining the full co-operation of the counties, largely because of reluctance to shoulder their share of the financial responsibility. The fact that the Health Act made the acceptance of this financial obligation mandatory was particularly objectionable to some municipalities, but after enforcement through the courts in a couple of instances, opposition ceased. The wisdom of this particular provision of the Act has been amply shown as it has enabled the carrying on of public health activities under a unified system with adequate central control.

Vital Statistics.—Prior to 1888 there was no system for the registration of births, marriages and deaths in the province as a whole. In that year a Vital Statistics Act was put into operation, with a registrar in each county, returns being made to the Provincial Secretary twice yearly. This system, while providing registration to a fair degree, did not result in the compilation of any information of the least value, except perhaps in the case of the three cities.

Under the Health Act of 1918 the collection and compilation of records was placed under the Department with the Chief Medical Officer as Registrar-General. Since its establishment this service has become associated with the Dominion Bureau of Statistics, as have the other provinces, so that since 1920 we have had available very complete vital statistics records.

In the seventeen years since the passing of this Act very considerable progress has been made. Smallpox has been abolished; there has been a vast improvement in methods of control of those diseases which are really controllable; infantile mortality, general mortality and tuberculosis death rates have been markedly reduced; and in general, health conditions so changed that the public has accepted the idea that an active department of health is one of the most important branches of provincial governmental responsibility.

Problems of the Medical Officer of Health in Urban Sanitation*

L. A. PEQUEGNAT, M.B.

Deputy Medical Officer of Health, Toronto

THE particular problems which the medical officer of health meets in urban communities accrue from the density of population; the multiplicity of similar or the same offences; the contagious attitudes of people, not always hostile but questioning; the misconceptions of the authority of the medical officer of health in the matter of certain grievances, always intensified by city life; and the magnitude of the task in the larger cities with their cosmopolitan populations. To all of these have been added of late the influences, in cities in particular, of the reverses of a depression from which we have not yet emerged.

Quite naturally there occurs to anyone the character of the problems which arise by virtue of the congestion of city life. Whether we have grown up with a city or come to it later, we are impressed with the fact that land values are high and that the average person is confined to a relatively small area. People live differently, move in crowds, buy more packeted goods and generally produce a quantity of organic and other refuse which does not lend itself to indifferent methods of disposal. These accumulations are a natural by-product of city life and one could not safely depend on rudimentary and natural processes of destruction, to say nothing of the undesirability of such. Privy pits would be intolerable and wells could rarely enjoy safe location.

Are these penalties of urban life? Not particularly in these days, for there is implied that the sanitary refinements of the present day are made more readily available to large numbers by the economy of collective participation. But there is thrown on the civic body a large responsibility.

MUNICIPAL SERVICES IN WHICH THE MEDICAL HEALTH OFFICER IS INTERESTED

Cities invariably enjoy sewerage systems and disposal plants. Such system or plant does not usually come under the jurisdiction of the health officer, but it is he who has to deal with any complaints of nuisance, and it is he who carries the sanitary responsibility lest at some time there be gross pollution of the water supply, or of a body of water to which people resort for bathing.

The question of a public water supply is of very considerable concern to the medical officer of health. Here again the erection and maintenance of the public utility is not his responsibility but he always has a vital interest in the quality of the product because of the relationship to water-borne disease. Fortunately, modern methods of treatment will deal with a wide range of organic pollution, thus attenuating to some degree the results of imperfect disintegration of polluting material but, nevertheless, the urban health officer always assigns

**Presented before the Academy of Medicine, Toronto, Section of Preventive Medicine and Hygiene, April 26, 1934.*

himself the task of periodically sampling the water supply and demanding its purity. In this respect he must be, if anything, more assiduous than the rural officer because of the very wide distribution of the supply.

Collection of Refuse

Having already alluded to the accumulation of domestic and household waste, I need no more than mention the need for regular collection of refuse, garbage, and ashes. This task, a vital part of municipal sanitation, need not be and probably is not one for the health authority. Removal of wastes is imperfect in the absence of proper receptacles and their maintenance in a clean state with the exclusion of flies and other vermin. An ideal method of disposal is by incineration. The straining of wet garbage and the wrapping of all garbage in paper before placing in receptacles ensure cleanliness and, moreover, aid combustion in the destructor.

Street Cleaning

The clearing of streets of dust and litter is also a matter of considerable importance, as is too the prohibition of spitting. Similarly, the smoke nuisance centres upon the city dweller in a way not experienced by the rural inhabitant and demands the attention it merits.

Congestion brings other problems. The city dweller is less fraternal than his rural brother; he is less indulgent with his neighbour and the close proximity with others aggravates. He has only a small frontage to himself and he wishes to enjoy it. His landscape is his neighbour's property and he often wishes to regulate that. Where constituted authority is well organized, as it more likely is in the city, it will be well used. The power of the medical officer of health is often sorely misjudged. He has authority and much of it, but people persist in coming to him as to an omnipotent person with every type of impossible proposal and request. Many, of course, genuinely believe that their health is being menaced; others come from selfish motive.

Unnecessary Noise

The late evening and night life of the city is creative of considerable disturbance and noise which offends others and which is in no way improved by the partitions of some semi-detached dwellings, or windows common to a light-well or side alley.

The special regulations governing unnecessary noises are indeed a problem. They are limited in their application and yet appeal is constantly made for the redress it is hoped they will afford but which cannot be satisfied. The regulation refers only to acts between the hours of 10.00 p.m. and 7 a.m. and does not meet the demands made during the daytime on behalf of sick people, aged folk, highly nervous persons and night-workers who must seek their rest in the daytime. Furthermore, during the hours of its application one is enabled to deal only with strictly unnecessary noise. In the case of the radio, no volume of noise which disturbs is permitted. What would ordinarily be superfluous noise may be a natural part of the life at a place of amusement. In the case of industry,

the normal noise of machinery cannot be restrained; if one wishes to bring night operations to a stop, application for injunction is the logical course. If, of course, machinery is not properly greased, or if bearings and moving parts are defective or worn, any abnormal amount of noise becomes unnecessary.

These are some of the outcomes of congestion and no one knows their implication better than the police and the health and sanitary officer. Some of them, of course, provide just cause for complaint but there are others which are of quite natural consequence. Some complaints are clearly sustained in law, others suggest the desirable or expedient, and still others fall into neither category. In itself a problem, the health authority is at all times confronted with the necessity to rule fairly and without fear or favour.

Another problem is that of maintaining a consistency of practice. One may change policy from time to time, but at a given time it should be reasonably uniform throughout the municipality. The moment an organization utilizes more than one sanitary officer, uniformity of practice becomes essential. Where there are a dozen, or seventy-five as in this city, all engaged in the pursuit of observance of sanitary requirements, the task plainly is no simple one. The need for good supervision is at once apparent and suggests also the extreme wisdom of the editing by a competent head or heads of the mandatory action undertaken by letter or by prosecution.

THE TENANT-LANDLORD RELATIONSHIP

Still another problem arises from the tenant-landlord relationship, a circumstance always accentuated in an urban centre with its apartments, rooming houses and large private property holdings. The matter of responsibility for nuisances I will present later. Under this heading I desire to deal with three points springing from this relationship.

Water Supply

In the matter of water supply the tenant naturally is expected to pay his own rates unless he has covenanted to receive it for rental. In any case, however, if the water supply is cut off for, say, non-payment of rates the law holds the owner responsible for supplying this prime necessity to his tenant. The non-payment of rent is not sufficient for escape of the landlord from his obligation. Regardless of other aspects, from the public health standpoint the provision is a wise one. For the health officer it, of course, often creates the problem of dealing with the irate owner. The interval necessary to bring about compulsion is in itself troublesome but fortunately both of these circumstances have been ameliorated by the consideration given this form of distress by the social agencies. During the past few years in particular the task of the health authority would have been well-nigh intolerable in this respect had it not been for the assistance thus given people.

Heating

Conversely, the health law provides no action in the matter of insufficient heat in rented property. Where adequate heat is a condition of a rental agree-

ment, as it in many cases is, the tenant—if deprived—is left to his civil rights. Frequently, during the colder weather, tenants lodge complaint in this regard. In numerous cases the landlord may employ withdrawal of heat in retaliation for non-payment of rent, or it may be that his generally reduced revenue may cause him to do so in part. Notwithstanding, the health officer—irrespective of appeal on the grounds of health—is not in a position to venture so much as a gesture of actual authority in the matter. The question is one purely of a civil nature. What has been said of heat supply is true also in the main of the matter of supply of gas and electrical power for cooking and lighting.

Structural Alterations

The third point under this heading has to do with the bringing about of structural alteration in a room or building. All phases cannot be described here. The provision of venting for gas appliances furnishes an illustration. This has become a formidable problem in the past few years of doubling-up in premises not adapted to light housekeeping in every room or flat. There may be no natural flue within reach; an outlet through wall or window may be prohibitive in cost or impractical. The responsibility rests with the owner of the appliance. The landlord, financially embarrassed in the face of the requirements, may prohibit its use; the tenant, for similar reason, may be unable to cope with the circumstances. The presence of an oven on a combination appliance presumes the former's use and would throw the whole appliance out of use in the absence of venting. Out of all this circumstantial confusion one must formulate a policy or a practice. Success may attend one's efforts but, on the other hand, an impasse is often reached. There is often left only the plan of passing up the need and of instructing the tenant in the careful use of the appliance in the presence of good ventilation. We leave, believing we have done our best, but carrying an unexpressed apprehension of what may take place which can then be mitigated only by return visits and faithful supervision.

SANITATION OF PREMISES

A fundamental issue associated with sanitation is the one of dirty premises, or the causing or maintaining thereon of a condition which menaces or may injure health. The Public Health Act places the responsibility on the owner or occupant of the premises, with the stipulation or implication that primary responsibility rests with the one by whose act the nuisance is created or maintained. Consequently, if the nuisance is due to structural defect, the owner logically is responsible; if it is brought about by the act of occupying, one has to look to the occupant. As a small technicality one has to assume that the liability rests with the owner if tenants vacate prior to being officially notified or instructed to remove a nuisance. If such notice has been served within the prescribed time the tenant may be compelled to return to put premises into a sanitary state. Citizens often have the erroneous notion that the health officer is enabled to bring a former tenant back under any circumstance. When, however, the former tenant has technically escaped his responsibility, removal of nuisance resolves itself into a duty as between the owner and the subsequent or

next tenant, a matter which sometimes invokes controversy but which depends in large measure on the length of time the new occupant has been passive or tolerant to the existence of the old nuisance.

Vacant lots or property, especially those not under the direct eye of the owner, are frequently subjected to deposits of various kinds by people in the vicinity. Technically and logically, the owner can hardly be held responsible. If one can locate the guilty parties they can be ordered to remove their refuse or rubbish. If this is impossible, or guilt is disputed, or the accumulation has reached large proportions, the health officer may find it necessary to effect removal by the corporation, using most probably the branch of civic service engaged in refuse collection and street-cleaning.

Surface Water

In the matter of accumulation of surface water, if a change in contour of land has been brought about by filling, raising or excavating, the person who has occasioned such must not only drain the area in question but assumes all liability for property damage to others and for any adjoining nuisance. If the natural lay of land sends an accumulation of water to a property, the sufferer bears the damage on his own property and is called upon also to attend to any associated nuisance thereon.

HOUSING AND THE IMPROVEMENT OF DWELLINGS AND SURROUNDINGS

We are here concerned with the actual conditions under which people live in their domiciles. The work obviously finds its greatest field of endeavour in the poor and crowded districts, and is per se a peculiar task of the urban health officer. The home undoubtedly is the centre of the community habit. Before children enter school they are gathering experiences which bend them, like the tree, in the direction in which they will grow for citizenship and home-making. To paraphrase, "Be it ever so humble, it can be made a home". Obviously, as you raise the morale and housekeeping zeal of the mother so you raise the whole tone of the household. I can readily understand why in Toronto quite a few years ago female housing inspectors were set aside for the work in the poorer districts. As "municipal housekeepers," these inspectors perform a twofold task: they supervise the home just as would the male inspector, and they encourage the art of improved homemaking. They labour not only with the Anglo-Saxon family but they find also a useful field of endeavour with the foreign speaking household, and the immigrant family which hails from a country with customs which are not ours. The work has its ups and downs. One finds people eager to be industrious, clean and thrifty and one finds others who will not help themselves, to whom, for example, it is too much trouble to close the cellar window on a cold day after the relief coal has been delivered, or who will neglectfully allow the plumbing to freeze and then quite cheerfully state that they are waiting for the warmer weather to thaw it out.

Houses Unfit for Habitation

The condemnation of property as unfit for human habitation is a matter not by any means so simple of application as it may seem; it is one of very grave

significance, so grave, in fact, that it should not be used even as a threat until one is positive that the property has reached a state defying repair of a satisfactory nature. It is often suggested by people who mean well that certain premises be so dealt with, but they undoubtedly fail to realize that it is not an innocent procedure, and that the property must be utterly beyond repair before a health authority will undertake this very responsible act.

Smoke Abatement

The general smoke nuisance arising, for the most part, from concentration of industry is usually dealt with by an individual specifically designated so to do in the municipality which faces a definite problem in this respect. The health officer, however, also becomes engaged in the menace as it affects especially residential areas. Poor fuelling may be the cause, as may be defective stacks. An apartment building may be erected presenting a towering flank of windowed wall to the chimney of an adjoining building. One might expect the principle of prior rights to defend the latter. The apartment builder, too, has received *his* rights and if the smoke is entering the compartments of his structure it must be abated. If the perpetrator of the nuisance feels that he must attempt to procure a measure of redress from a disproportionate outlay occasioned by the arrival of his giant neighbour, he will have to look to the civil court.

INDUSTRIAL HYGIENE

Just as cities vary in the numbers of industries within their borders, so do industries vary in the menaces that they present to the workers. Wherever there is industry there is invariably some circumstance attention to which can be turned to good account.

The health requirements on behalf of industrial employees are fairly well covered in the Factory, Shop and Office Building Act of Ontario. The Public Health Act, too, is applicable since any establishment is a premises within the municipality. There need be no incongruity as between these acts, the latter conveying quite general authority and the former in some respects serving to define the actual terms of the health requirements within industry. Furthermore, the Factory Act does not cover some of the very small places of employment, whereas the Public Health Act enables its officers to investigate wherever the interest of an individual is concerned.

General sanitation regarding lavatories, towels, cups, ventilation, etc., is always a problem which cannot be overlooked by the factory inspector, but as distinct problems peculiar to industrial hygiene we think of dust in its general effect and of dust, mineral or chemical solids and fumes as they are related to specific occupational or industrial disease.

One of the first requisites in many industries is an adequate dust-control system and in certain industries the provision of masks. Workers in lead and silica require especial attention. Some workers will lay aside safety devices, to speed up work, especially piece-work, and to remove discomfort. The duty of an inspector is to insist on the use of appliances, regardless of personal choices.

Fumes of a dangerous character need always be controlled by mechanical means. In certain occupations, such as paint and lacquer spraying, it may be found that the man actually doing the spraying is protected but his fellow-employee is not; the solution obviously is to confine the spraying to booths properly ventilated.

The running of motors in garages is always dangerous. Particularly is this true in storage garages where during the inopportune cold season, with doors and windows closed and heat conserved by the closing of the vent, many motors may be started and allowed to warm up. In repair garages the same type of menace may exist. Considerable exhaust is frequently found in the atmosphere. Even when flexible tubing is used to convey the gas from the exhaust line to the window during a long-running operation, defects and poor fitting reduce the safety factor.

Some industries, principally Javelle water-making and garment-making, are found in dwellings, constituting a family affair and so a delicately personal matter. One, of course, must always exercise reasonable supervision, regardless of any circumstance.

As may be known, a regulation is in force requiring all wiping rags to be sufficiently cleansed and washed to merit labelling as sterile. In industry the responsibility is on the employer to supply only rags of this class, and to appreciate the need of discarding the cloths before they become utterly unsuitable and unsanitary.

THE IMPORTANCE OF SUPERVISION OF PLUMBING PRACTICE AND THE VALUE OF GOOD LEGISLATION

There should be no need to establish the wisdom of first-grade plumbing, either as it affects the quality of the materials used or the workmanship employed, if we thoroughly appreciate two things. Plumbing, in the main, has to do with the creation and maintenance of a system to carry away to a safe place discharges and wastes of man, an extremely important matter in view of the dictum that man is the reservoir of infection for man and his excreta dangerous vehicles. In the second place, plumbing and drainage is in many of its parts hidden within permanent construction or under the ground; permanence and essential durability present sufficient reason for good plumbing, to say nothing of the potential dangers from old and poor installations.

There are people who, granting all this, say that too much attention is given to vents and traps, pointing to discarded theories concerning the dangers of sewer-air and gases. We cannot be too sure of such a contention, particularly when we deal with the sewage of a system which combines both human and industrial waste. Aside from this fact, no one is desirous of admitting sewer-air to dwellings. While such air may not actually convey disease it bears indirectly on the question. Until it is conclusively shown that sewer-gas has no effect whatsoever on health and until we have come to the point where our finer senses are not repelled by it—which I predict will never be—we will be well-advised to forget our doubts and misgivings and turn our allegiance to good plumbing legislation.

The careful examination of plans and work performed, especially in times when building is brisk, constitutes a major problem by virtue of its volume.

A special problem confronts the authority when an unscrupulous or ignorant individual employs a plumber to make an installation without permit. This fact may come to our attention through any of several channels, perhaps not until some time when an alteration or major repair becomes necessary. In dealing with such a circumstance, it frequently becomes necessary to demand exposure of at least the essential parts of the installation for inspection. The removal of the earth over a long drain, or the tearing down of lath and plaster from a partition is not an infrequent occurrence and represents unnecessary expense brought about by an earlier violation.

A common source of trouble is due to evaporation of water in traps through disuse in an old building or during a shut-down period in industry.

In certain instances a siphonic action removes the water seal of the trap. This may be brought about by faulty construction or blockage in the vent system, whereby the onward rush of water, drawing air through the trap, instead of from the vent, destroys the seal.

It is not altogether apparent how much amateur plumbing is carried on, but in industry the so-called handyman is still in evidence and his sphere of activity probably does not stop short of plumbing repair and certain installation. This type of service, of course, is prohibited.

Danger of Cross Connection

I desire lastly to draw attention to the so-called "cross-connection," which implies a connection between the drainage system and the water supply, not due to leaks or faulty material. This circumstance may be very artificially produced or it may exist as an actual part of what is assumed to be good installation. As an example, if an open spigot or faucet of a basin or bath-tub reaches to a point below the overflow level, any sudden lowering of the lift-pressure in the water supply may bring about a siphoning-back of the contents of tub or basin if the contents are above or at the level of the faucet. This sort of thing, of course, does not often happen. There are, however, installations of equipment which gets its supply of water from below; in other words, it is underfed. Swimming-pools may be supplied in this way and, with a lowering of the feed-pressure, polluted water may be drawn back and distributed as drinking water at other points. The avoidance of "cross-connection" has of late become a vital consideration in the study of plans of water supply and waste disposal in buildings.

The foregoing are some of the problems of municipal sanitation. Their existence obviously brands sanitation as a not inconsequential part of public health as a whole. I am quite aware that I have not presented all of the problems, nor yet all of the major ones, but rather those which in the preparation of this paper have occurred to me as the more representative and vital ones. As problems I assume that they have interest, for once a problem ceases to command interest it ceases to be a problem.

Preliminary Program

NATIONAL CONFERENCE

Canadian Public Health Association
Ontario Health Officers' Association
Canadian Tuberculosis Association
Canadian Social Hygiene Council

TORONTO, JUNE 3, 4 and 5, 1935

Convention Headquarters: Royal York Hotel

GENERAL DIRECTORY OF SESSIONS

(All meetings on daylight saving time)

Monday, June 3rd

9.00 a.m.—Registration.

10.00 a.m.—Ontario Health Officers' Association.

Canadian Tuberculosis Association, clinical papers (Royal York Hotel).

10.30 a.m.—Vital Statistics Section, Canadian Public Health Association.

2.30 p.m.—General session, Canadian Public Health Association, Ontario Health Officers' Association and Canadian Social Hygiene Council.

Canadian Tuberculosis Association, clinical session (Toronto Hospital for Consumptives, Weston).

5.00 p.m.—Executive meeting, Canadian Tuberculosis Association.

6.30 p.m.—Supper meeting, Vital Statistics Section, Canadian Public Health Association.

7.30 to 10.00 p.m.—Scientific exhibits, demonstrations and program sponsored by the Canadian Tuberculosis Association, open to the public.

8.00 p.m.—Executive Council meeting, Canadian Public Health Association.

Tuesday, June 4th

9.15 a.m.—Public Health Nursing Section, Canadian Public Health Association.

9.30 a.m.—Section meetings, Canadian Public Health Association and Ontario Health Officers' Association:

Industrial Hygiene.

Laboratory.

Public Health Engineering.

Vital Statistics.

Clinical session, Canadian Tuberculosis Association (Christie Street Hospital).

1.00 p.m.—Luncheon meetings, Sections of Public Health Nursing and Public Health Engineering, Canadian Public Health Association.

2.30 p.m.—General session, Canadian Public Health Association, Ontario Health Officers' Association, Canadian Tuberculosis Association and Canadian Social Hygiene Council.

4.30 p.m.—Reception for visiting ladies.

6.30 p.m.—Round-table dinner conference, Ontario Health Officers' Association.

7.30 p.m.—Scientific exhibits, demonstrations and program sponsored by the Canadian Social Hygiene Council and the Toronto Health League, open to the public.

Wednesday, June 5th

- 9.30 a.m.—Ontario Health Officers' Association: Program of demonstrations.
Section meetings, Canadian Public Health Association:
Laboratory.
Mental Hygiene.
Social Hygiene.
Vital Statistics.
- 10.00 a.m.—Canadian Tuberculosis Association:
Clinical session (Department of Public Health, City Hall).
- 1.00 p.m.—Luncheon session, Canadian Public Health Association.
Luncheon session and annual meeting, Canadian Tuberculosis Association.
- 2.30 p.m.—General session, Canadian Public Health Association, Ontario Health Officers' Association and Canadian Social Hygiene Council.
Canadian Tuberculosis Association, round-table discussion on the Christmas Seal campaign.
- 7.30 to 10.00 p.m.—Scientific exhibits.
- 8.00 p.m.—Annual meeting, Canadian Social Hygiene Council.

CANADIAN TUBERCULOSIS ASSOCIATION**Directory of Sessions****Monday, June 3rd**

- 9.30 a.m.—Registration.
- 10.00 a.m.—Clinical papers, Royal York Hotel.
- 2.30 p.m.—Clinical session, Toronto Hospital for Consumptives, Weston.
- 5.30 p.m.—Executive meeting, Royal York Hotel.

Tuesday, June 4th

- 10.00 a.m.—Clinical session, Christie Street Hospital.
(Appointments may be made with the directors of the clinics at the Toronto General Hospital, the Hospital for Sick Children, and St. Michael's Hospital.)
- 2.30 p.m.—General session with the Canadian Public Health Association, the Ontario Health Officers' Association and the Canadian Social Hygiene Council, Royal York Hotel.

Wednesday, June 5th

- 9.30 a.m.—Demonstration of Toronto's methods of tuberculosis control—Department of Public Health, City Hall.
- 1.00 p.m.—Luncheon, annual meeting, with presentation of research awards.
- 2.30 p.m.—Round-table discussion of Christmas Seal campaign.

FIRST SESSION**ONTARIO HEALTH OFFICERS' ASSOCIATION****Monday, June 3rd, 10.00 a.m.—Concert Hall**

- 10.00 a.m.—Address—The Honourable J. Albert Faulkner, Minister of Health.
- 10.20 a.m.—Recent Health Legislation in Ontario—Dr. W. J. Bell, Deputy Minister of Health.
- 10.40 a.m.—Discussion.

- 10.50 a.m.—The Medical Officer of Health and School Health:
 (a) Health Services.
 (b) Sanitation of the School Plant.
 (c) Health Teaching in the Classroom.
- 11.10 a.m.—A Lesson in Disease Prevention to Junior Pupils, followed by demonstration of hand-washing.
- 11.30 a.m.—Discussion, led by Dr. J. A. Morgan, Medical Officer of Health, North Monaghan and Smith Townships.
- 11.40 a.m.—How We Attained Immunization in a High Percentage of School Children in South Dumfries Township—Dr. E. J. Gordon, Medical Officer of Health, St. George. Discussion, led by Dr. C. D. Farquharson, Medical Officer of Health, Scarborough Township.
- 12.00 p.m.—Appointment of committees.

CANADIAN TUBERCULOSIS ASSOCIATION

Monday, June 3rd, 10.00 a.m.—Royal York Hotel.

Chairman—Dr. J. A. Couillard, Medical Superintendent, Lake Edward Sanatorium, Quebec; President, Canadian Tuberculosis Association.

1. Title to be announced—Dr. R. J. Collins, Medical Superintendent, Saint John Tuberculosis Hospital, East Saint John, N.B.
2. Cystic Disease of the Lungs—Dr. J. D. Adamson, Medical Superintendent, St. Boniface Sanatorium, St. Vital, Manitoba.
3. Report on the Use of BCG Vaccine in Montreal—Dr. J. A. Baudouin, Director, School of Social Hygiene, University of Montreal, Montreal, Quebec.

CANADIAN PUBLIC HEALTH ASSOCIATION

Vital Statistics Section

Monday, June 3rd, 10.30 a.m.

1. Chairman's Address—Mr. T. E. Ashton, Statistician, Department of Public Health, City of Toronto.
2. Mortality from Respiratory Diseases in Ontario, 1880-1931—Miss Mary Ross, M.A., Ph.D., School of Hygiene, University of Toronto.
3. Title to be announced—Dr. Eugene Gagnon, Superintendent, Division of Vital Statistics, Department of Health, City of Montreal.
4. Fourth Report of the Committee on Non-resident Births and Deaths—Mr. T. E. Ashton.
5. Identification of Tularemia in Nova Scotia—Dr. H. G. Grant and Dr. A. L. McLean, Department of Preventive Medicine, Dalhousie University, Halifax, N.S.

SECOND SESSION

GENERAL MEETING OF THE CANADIAN PUBLIC HEALTH ASSOCIATION, THE ONTARIO HEALTH OFFICERS' ASSOCIATION AND THE CANADIAN SOCIAL HYGIENE COUNCIL

Monday, June 3rd, 2.30 p.m.—Concert Hall

Chairman—Dr. F. W. Jackson, Deputy Minister of Health and Public Welfare, Winnipeg, and President of the Canadian Public Health Association.

1. Address of Welcome—The Honourable J. Albert Faulkner, Minister of Health, Ontario.

2. Presidential Address—Dr. F. W. Jackson.
Conferring of honorary life membership in the Canadian Public Health Association.
 3. Address—Surgeon General Cumming, United States Public Health Service, Washington, D.C.
 4. Title to be announced—Dr. C. L. Scamman, Director, Division of Public Health, The Commonwealth Fund, New York, N.Y.
- Appointment of Committees on Nominations and Resolutions.

CANADIAN TUBERCULOSIS ASSOCIATION

- Monday, June 3rd, 2.30 p.m.**—Clinical session, Toronto Hospital for Consumptives, Weston.
- Monday, June 3rd, 5.30 p.m.**—Executive meeting—Royal York Hotel.

THIRD SESSION

CANADIAN PUBLIC HEALTH ASSOCIATION

Vital Statistics Section

- Monday, June 3rd, 6.30 p.m.**—Supper meeting
- Chairman—Mr. T. E. Ashton, Statistician, Department of Public Health, City of Toronto.
- Scope for Improvement in Canadian Stillbirth Statistics—Mr. E. S. Macphail, Late Chief, Division of Census and Vital Statistics, Dominion Bureau of Statistics, Ottawa.
- Round-table discussion, including presentation of the Report of the Committee on the Certification of Causes of Death.

Executive Council, Canadian Public Health Association

- Monday, June 3rd, 8.00 p.m.**
- Reception of reports.

CANADIAN TUBERCULOSIS ASSOCIATION

- Monday, June 3rd, 7.30 to 10.00 p.m.**
- 7.30 p.m.—Scientific and commercial exhibits open to the public.
Demonstrations.
- 8.15 p.m.—Official opening of the exhibits.
Address, "Modern Medicine's Promise to Abolish Tuberculosis"—Dr. H. E. Kleinschmidt, Director of Health Education, National Tuberculosis Association, New York.
- 9.15 p.m.—Demonstrations in exhibit section.

FOURTH SESSION

ONTARIO HEALTH OFFICERS' ASSOCIATION

- Tuesday, June 4th, 9.30 a.m.**
- In order to allow the Medical Officers of Health to participate in the programs of the various sections of the Canadian Public Health Association on this morning, no special schedule for the Ontario Health Officers' Association has been arranged.

CANADIAN PUBLIC HEALTH ASSOCIATION

Industrial Hygiene Section

Tuesday, June 4th, 9.30 a.m.

Chairman—Dr. F. M. R. Bulmer, Division of Industrial Hygiene, Ontario Department of Health, Toronto.

1. Early Treatment in Industrial Accidents—Dr. E. C. Janes, Hamilton, Ontario.
 2. Workmen's Compensation and Accidents—Mr. T. N. Dean, M.A., F.S.S., Statistician, Ontario Workmen's Compensation Board, Toronto.
 3. Industrial Dermatoses—Dr. E. J. Trow, Assistant Professor in charge of Dermatology, University of Toronto.
 4. The Problem of Housing for the Low Paid Industrial Worker—Speaker to be announced.
- Election of officers.

Laboratory Section

Tuesday, June 4th, 9.30 a.m.

Chairman—Dr. J. H. Orr, Queen's University, Kingston; Vice-chairman, Laboratory Section.

1. Symposium on Immunization Procedures:
 - (a) Diphtheria:
 - (i) Preparation of Diphtheria Toxoids—Mr. M. D. Orr, B.A., Connaught Laboratories, University of Toronto.
 - (ii) Fundamental Considerations in Immunization—Dr. N. E. McKinnon, Connaught Laboratories, University of Toronto.
 - (b) Scarlet fever:
 - (i) Present Status of Scarlet Fever Immunization—Dr. Frieda H. Fraser, Connaught Laboratories, University of Toronto.
 - (ii) Immunization against Scarlet Fever in an Urban Municipality—Dr. Gordon Berry, Oshawa.
- Discussion—Dr. C. D. Farquharson, Medical Officer of Health, Scarborough Township, Ontario.
- (c) Antityphoid Vaccine—Dr. M. H. Brown, Connaught Laboratories, University of Toronto.
- (d) Insulin in Non-diabetic Conditions—Dr. C. H. Best, Professor of Physiology, University of Toronto.

Public Health Engineering Section

Tuesday, June 4th, 9.30 a.m.

1. Chairman's Address—Mr. M. Pequegnat, Superintendent of Waterworks, Kitchener, Ontario.
 2. Mineral Water Supplies in Ontario—Speaker to be announced.
 3. Travel Habits of Odors—Mr. J. Van Benschoten, Toronto.
 4. Swimming Pool Construction—Speaker to be announced.
 5. Dining Car Sanitation—Mr. G. H. Ferguson, Chief Sanitary Engineer, Department of Pensions and National Health, Ottawa.
- Election of officers.

Public Health Nursing Section**Tuesday, June 4th, 9.15 a.m.**

Chairman—Miss Elizabeth L. Smellie, C.B.E., Chief Superintendent for Canada, Victorian Order of Nurses, Ottawa.

Symposium, Essential Features of a Health Program:

1. Provincial:
 - (a) The Health Officer—Dr. M. R. Bow, Deputy Minister of Health for Alberta, Edmonton.
 - (b) The Educationist—Miss Anna E. Wells, Reg.N., Health Education Service, Manitoba Department of Health and Public Welfare, Winnipeg.
 2. Municipal:
 - (a) The Health Officer—Dr. C. D. Farquharson, Medical Officer of Health, Scarborough Township, Agincourt, Ontario.
 - (b) Director of Nursing—Miss Nora Moore, Reg.N., Director, Division of Public Health Nursing, Department of Public Health, City of Toronto.
 3. Non-official:
 - (a) Medical Director—Dr. G. J. Wherrett, Executive Secretary, Canadian Tuberculosis Association, Ottawa, Ontario.
 - (b) Supervisor of Nursing—Miss Dorothy Mickleborough, Reg.N., Supervisor for Ontario, Victorian Order of Nurses, Ottawa.
 4. As Viewed by:
 - (a) The Public:
 - (i) Chairman, Board of Health—W. Ross Strike, Esq., Chairman, Board of Health, Bowmanville, Ontario.
 - (ii) Citizen—Mrs. Leonard Carpenter, Blind River, Ontario.
 - (b) A Practising Physician—Dr. S. J. Forrest, Toronto.
 5. Chairman's Remarks.
 6. Summary of papers—Dr. T. C. Routley, Secretary, Canadian Medical Association, Toronto.
- Reports of Committees:
- (a) Nominations. (b) Resolutions.

Vital Statistics Section**Tuesday, June 4th, 9.30 a.m.**

Chairman—Mr. T. E. Ashton, Statistician, Department of Public Health, City of Toronto.

1. Distribution of Enteric Diseases in Ontario—Dr. R. P. Hardman, Division of Preventable Diseases, Ontario Department of Health, Toronto.
2. Report of the Committee on the Annual Report of the Medical Officer of Health—Dr. D. V. Currey, Medical Officer of Health, St. Catharines, Ontario.
3. The Problem of Accidental Deaths—Dr. A. Hardisty Sellers, School of Hygiene, University of Toronto.
4. Title to be announced—Dr. A. R. Foley, Epidemiologist, Provincial Bureau of Health, Quebec.
5. Measles Prevention—Dr. K. F. Brandon, School of Hygiene, University of Toronto.

CANADIAN TUBERCULOSIS ASSOCIATION**Tuesday, June 4th, 10.00 a.m.**—Clinical session, Christie Street Hospital.

Appointments may be made with the directors of the clinics at the Toronto General Hospital, the Hospital for Sick Children, and St. Michael's Hospital.

LUNCHEON SESSIONS**CANADIAN PUBLIC HEALTH ASSOCIATION****Sections of Public Health Nursing and Public Health Engineering**

Tuesday, June 4th, 1.00 p.m.

Public Health Nursing Section—Chairman, Miss Elizabeth L. Smellie, C.B.E., Chief Supervisor for Canada, Victorian Order of Nurses, Ottawa.

Speakers—To be announced.

Public Health Engineering Section—Chairman, Mr. M. Pequegnat, Superintendent of Waterworks, Kitchener, Ontario.

Speaker—To be announced.

FIFTH SESSION

**GENERAL MEETING OF THE CANADIAN PUBLIC HEALTH ASSOCIATION,
THE ONTARIO HEALTH OFFICERS' ASSOCIATION, THE
CANADIAN TUBERCULOSIS ASSOCIATION AND THE
CANADIAN SOCIAL HYGIENE COUNCIL**

Tuesday, June 4th, 2.30 p.m.

Chairman—Dr. Ward Woolner, Ayr, Ontario; President of the Ontario Health Officers' Association.

1. Presidential Address—Dr. Woolner.
2. A Review of the Present Anti-tuberculosis Program in Ontario—Dr. D. A. Crombie, Medical Superintendent, Byron Sanatorium, London.
3. A Suggested Program for Anti-tuberculosis Work in Ontario—Dr. W. J. Dobbie, Medical Superintendent, Toronto Hospital for Consumptives, Weston.

4.30 p.m.—Reception for visiting ladies.

SIXTH SESSION**ONTARIO HEALTH OFFICERS' ASSOCIATION**

Tuesday, June 4th, 6.30 p.m.—Roof Garden.

Dinner and round-table discussion.

EVENING SESSION**Canadian Social Hygiene Council and Toronto Health League**

Tuesday, June 4th, 7.30 to 10.00 p.m.

7.30 p.m.—Scientific and commercial exhibits open to the public.
Demonstrations.

8.15 p.m.—Program.

9.15 p.m.—Demonstrations in exhibit section.

SEVENTH SESSION**ONTARIO HEALTH OFFICERS' ASSOCIATION**

Wednesday, June 5th, 9.30 a.m.—Concert Hall.

Program of Clinical Demonstrations:

9.30 a.m.—1. Sanitary Engineering:

- (a) Rural water supplies.
 - (b) Chlorine tests on water supplies.
- Discussion.

10.00 a.m.—2. Public Health Nursing:

Demonstration of a home visit to a tuberculous case by the public health nurse.

Discussion.

10.30 a.m.—3. Laboratory Services:

- (a) Laboratory services available for the diagnosis of enteric fevers—
Dr. A. L. MacNabb, Director, Division of Laboratories, Ontario Department of Health (15 minutes).
- (b) Isolation of tubercle bacilli—Dr. A. L. MacNabb (5 minutes).
- (c) Demonstration of Neufeldt method of pneumococcus typing—Dr. W. B. McClure, Division of Laboratories, Ontario Department of Health (5 minutes).

11.00 a.m.—4. Industrial Hygiene:

Evaluation of Health Hazards from Dusts and Fumes.

Discussion.

11.30 a.m.—5. Preventable Diseases:

- Undulant fever.
- Scarlet fever.
- Whooping cough.

Discussion.

Election of officers.

CANADIAN TUBERCULOSIS ASSOCIATION

Wednesday, June 5th, 9.30 a.m.—City Hall.

Demonstration of Toronto's methods of tuberculosis control—Dr. G. P. Jackson, Medical Officer of Health, Toronto.

CANADIAN PUBLIC HEALTH ASSOCIATION**Laboratory Section**

Wednesday, June 5th, 9.30 a.m.

Chairman—Dr. W. J. Deadman, Director of City Laboratories, Hamilton General Hospital, Hamilton, Ontario.

1. Glare in Class Rooms—Dr. D. L. McLean, Department of Physiological Hygiene, School of Hygiene, University of Toronto.
2. Chemical Fractions of the Tubercle Bacillus as Antigen in Complement Fixation—
Mr. B. G. Gardiner, M.A., Department of Bacteriology, Queen's University, Kingston, Ontario.

3. Post-mortem Findings in Encephalitis following Measles—Dr. H. A. Ansley, City Laboratories, Hamilton General Hospital, Hamilton, Ontario.
4. Antigenic Qualities of Vaccinia and Smallpox Viruses—Dr. F. O. Wishart, Connaught Laboratories, University of Toronto.
5. Irradiated Milk—Dr. E. W. McHenry, Department of Physiological Hygiene, University of Toronto.
6. Bacteriological Food Infections—Dr. J. Wyllie, Department of Preventive Medicine, Queen's University, Kingston.

Mental Hygiene Section

Wednesday, June 5th, 9.30 a.m.

Chairman—Dr. B. T. McGhie, Deputy Minister of Hospitals, Ontario Department of Health, Toronto.

1. Mental Hygiene Aspects of the Nursing Department of the Toronto Psychiatric Hospital—Miss E. R. Dick, Reg.N., Director of Nursing, Toronto Psychiatric Hospital.
 2. Some Preventive Aspects of Mental Hygiene—Dr. E. P. Lewis, Director, Out-patient Department, Toronto Psychiatric Hospital.
 3. Problem Children, Their Parents and Teachers—Dr. C. G. Stogdill, Director, Division of Mental Hygiene, Department of Public Health, City of Toronto.
- Election of officers.

Social Hygiene Section

Wednesday, June 5th, 9.30 a.m.

Chairman—Dr. Gordon Bates, General Director, Canadian Social Hygiene Council, Toronto.

1. The Venereal Disease Problem—Dr. A. S. Parney, Department of Pensions and National Health, Ottawa.
 2. Health Insurance Plans in Canada—Dr. M. R. Bow, Deputy Minister of Health for Alberta, Edmonton.
 3. Periodic Health Examination from the Practitioner's Standpoint—Dr. H. M. Harrison, Canadian Medical Institute, Toronto.
 4. Public Health Education and National Health—Dr. Gordon Bates, General Director, Canadian Social Hygiene Council, Toronto.
- Election of officers.

Vital Statistics Section

Wednesday, June 5th, 9.30 a.m.

Chairman—Mr. T. E. Ashton, Statistician, Department of Public Health, City of Toronto.

1. Occurrence of Diphtheria in Persons subsequent to Immunization—Dr. R. D. Defries and Miss Mary A. Ross, M.A., Ph.D., University of Toronto; and Dr. J. E. Laxton, Department of Public Health, City of Toronto.
 2. Parasitology and its relation to Public Health in Canada—Dr. Thomas Cameron, Director, Institute of Parasitology, McGill University, Macdonald College, Quebec.
 3. Communicable Disease as administered by the Department of Pensions and National Health—Dr. C. P. Brown, Chief, Division of Quarantine, Department of Pensions and National Health, Ottawa.
 4. Cardiovascular-Renal Conditions as a Problem in Public Health—Dr. H. C. Cruikshank, Medical Director, Manufacturers Life Insurance Company, Toronto.
 5. Title to be announced—Dr. Wm. Warwick, Chief Medical Officer and Registrar-General for New Brunswick, Fredericton.
- Election of officers.

EIGHTH SESSION**CANADIAN TUBERCULOSIS ASSOCIATION**

Wednesday, June 5th, 1 p.m.—Luncheon and annual meeting.

The annual research awards will be presented at this meeting.

CANADIAN PUBLIC HEALTH ASSOCIATION

Wednesday, June 5th, 1 p.m.—Luncheon meeting.

Speaker—Dr. E. L. Bishop, State Commissioner of Health for Tennessee, Nashville.

NINTH SESSION**GENERAL MEETING OF THE CANADIAN PUBLIC HEALTH ASSOCIATION,
THE ONTARIO HEALTH OFFICERS' ASSOCIATION AND
THE CANADIAN SOCIAL HYGIENE COUNCIL**

Wednesday, June 5th, 2.30 p.m.

Chairman—Dr. F. W. Jackson, Deputy Minister of Health and Public Welfare, Manitoba, President, Canadian Public Health Association.

1. Useful Accessories in the Public Health Field—Miss Elizabeth L. Smellie, C.B.E., Chief Superintendent for Canada, Victorian Order of Nurses, Ottawa.
2. Recent Advances in the Treatment of Pernicious Anaemia—Dr. R. F. Farquharson, Assistant Professor of Therapeutics and Head of the Department, and Assistant Professor of Medicine, University of Toronto.
3. Some Problems in Poliomyelitis—Dr. James Craigie, Connaught Laboratories and School of Hygiene, University of Toronto.
4. Causes and Control of Tastes and Odors in Public Water Supplies—Mr. N. J. Howard, Director, Filtration Plant Laboratory, Department of Public Health, Toronto.
5. Milk Control—Report of Committee, Canadian Public Health Association—Dr. W. J. Bell, Deputy Minister of Health, Ontario.
6. The New Canadian Death Certificate—Dr. R. D. Defries, School of Hygiene and Connaught Laboratories, University of Toronto.

CANADIAN TUBERCULOSIS ASSOCIATION

Wednesday, June 5th, 2.30 p.m.—Royal York Hotel.

Round-table discussion on the Christmas Seal Sale.

TENTH SESSION**CANADIAN SOCIAL HYGIENE COUNCIL**

Wednesday, June 5th, 8.15 p.m.—Annual meeting.

Chairman—The Honourable Mr. Justice Riddell, Toronto, President.

Annual Report of the General Secretary.

Reports of Standing Committees.

Election of officers.

EDITORIAL SECTION

EDITORIAL BOARD

R. D. DEFRIES, M.D., D.P.H., *Chairman*
J. T. PHAIRE, M.B., D.P.H., AND N. E. MCKINNON, M.B., *Associate Chairmen*
R. L. RANDALL, *Editorial Assistant*

G. D. PORTER, M.B., <i>Public Health Administration.</i>	D. T. FRASER, B.A., M.B., D.P.H., <i>Mental Hygiene.</i>
A. L. MCKAY, B.A., M.B., D.P.H., <i>Epidemiology and Vital Statistics.</i>	A. E. BERRY, M.A.Sc., C.E., Ph.D., <i>Public Health Engineering.</i>
A. L. MACNABB, B.V.Sc., <i>Laboratory.</i>	C. ETHEL GREENWOOD, REG.N., <i>Public Health Nursing.</i>
GORDON BATES, M.B., <i>Social Hygiene.</i>	J. G. CUNNINGHAM, B.A., M.B., D.P.H., <i>Industrial Hygiene.</i>
E. W. MCHENRY, M.A., Ph.D., <i>Food, Drugs and Nutrition.</i>	JAMES CRAIGIE, M.B., Ch.B., Ph.D., D.P.H., <i>St. And., Current Health Literature.</i>
MARY POWER, B.A., <i>Public Health Education.</i>	
R. R. MCCLENAHAN, B.A., M.B., D.P.H., and A. H. SELLERS, B.A., M.D., D.P.H., <i>Books and Reports.</i>	

PROVISIONS FOR ENSURING ADEQUATE MEDICAL CARE OF CERTAIN DEFINED GROUPS

THE term health insurance is freely used to describe measures designed to ensure medical care of those who are unable to secure such care for themselves when it is needed. After reviewing the literature descriptive of the variety of schemes in vogue in the countries which have adopted such measures, the name would appear to be often a misnomer. The plans in effect to-day concern themselves only with the treatment of disease and it would appear from the majority report of the Royal Commission on National Health Insurance which reviewed the British system in 1926 that very real difficulties stand in the way of integrating much of the preventive aspect of medicine into the scheme in that country.

Health or sickness insurance is in effect in the majority of European countries; the plans may be voluntary or compulsory; they may include medical care with qualifications for the insured only as in Great Britain, or include all dependents of the insured as in Germany; they may give a limited treatment service or a reasonably complete one; they may even be applicable to only a certain specific disease as in Italy, or concern themselves with maternity benefits as in others. Most of them have one feature in common, however, namely, the payment of a fixed amount per week to the insured when unemployed through sickness.

In the consideration of any plan of state wide medical care (by medical care is implied all that is essential for the curative treatment of the insured sick) the proponents of such a movement must keep in mind, first, that there are three groups of individuals concerned, namely, those paying for the service, those receiving it and those rendering it; and that no plan which ignores the reasonable rights of all three can be effective. The primary purpose of any plan must be to provide (within reasonable limitation) the maximum of service obtainable for the money expended. The second is that every reasonable consideration shall be given to those supplying such service. That the scheme shall be compulsory, that it shall include all members of the insured's family, that it shall be ably administered, that it shall be actuarially sound, are taken for granted.

In any attempt to divorce provision for treatment from an assurance of income during a period of unemployability due to illness, it must be borne in mind that the last mentioned of these features is of greater concern to the individual seeking insurance than the first. Such provision was the most appealing feature of all existing schemes at the time of their adoption, not only to the members of the community who might profit by such a measure but also to those actively concerned with social reform. The bugaboo of certification of sickness crops up under any plan as yet devised. It existed in the early days of compensation from accidents in industry, exists in the schemes in vogue in Europe and will present itself for consideration in any plan yet suggested as applicable to Canadian conditions. Mere elimination of payment to the insured during periods of illness from any proposed plan does not dispose of the problem. If the insured is to get no remuneration during illness, then he is not materially concerned with health insurance. If he is, then certification of the extent of illness must rest with the attending physician.

Due consideration must be given to the cost of and method designed to meet this cost in this country at the moment; and along with the question of cost must be considered the actuarial soundness of the plan proposed.

THE NEW CANADIAN DEATH CERTIFICATE

CANADA can well be proud of what has been achieved during the past decade in establishing a national system of vital statistics when it is remembered that prior to 1920 there was no uniformity in the administration and enforcement of registration. With the increasing interest in mortality statistics, however, there has been a growing feeling that a revision of the death certificate, as introduced in 1920, was necessary. This feeling was directed particularly toward the medical statement of cause of death. During his tenure of office as chief of the Division of Census and Vital Statistics of the Dominion Bureau of Statistics Mr. E. S. Macphail repeatedly drew attention to this factor and its relation to greater accuracy in certification. It is pleasing therefore that the task of revision has been completed and approved by the profession before Mr. Macphail's retirement.

An improved certificate, however, will not in itself assure improved certification. If the weaknesses of the former certificate as relating to the physician's statement of cause of death are to be overcome, physicians must understand the purpose of the new certificate. To this end, the committee is co-operating with the provincial medical associations in informing the profession about the proper use of the certificate and the Dominion Bureau is preparing a new publication to replace the present Physician's Pocket Reference, of such character that it will serve also as a manual of instruction for undergraduate medical students.

The revision of the death certificate manifests a wide interest in vital statistics on the part of the profession and demonstrates the services which can be rendered by the Association.

LETTER FROM GREAT BRITAIN

GEORGE F. BUCHAN, M.D., F.R.C.P., D.P.H.

London

IN this quarterly letter I propose to review the Annual Report of the Chief Medical Officer of the Board of Education on the Health of the School Child. It is a coincidence that this letter should be sent at the time when the resignation of Sir George Newman as the Chief Medical Officer of the Government has been announced. He has been the Chief Medical Officer of the Board of Education since school medical inspection began in 1907 and the Chief Medical Officer of the Ministry of Health since its establishment in 1919. Those of us who have been in the public health service during all this period greatly regret his departure from his high office. His annual reports have not only been an inspiration to the service but they have done more to stimulate a health conscience in the minds of members of local authorities and the public than any other writings of any medical man during any period of our history. Sir George Newman had a genius for saying the right thing at the right time and we of the service sincerely trust that he has handed on this attribute to his successor, Dr. MacNalty. Apart from his writings, Sir George had a colourful personality and a wonderful charm of manner and he will be missed as a friend by every member of the public health service who had the privilege of knowing him personally. Although he goes into official retirement it is to be hoped that we may long have the pleasure of reading contributions from his pen and hearing his spoken word. My Canadian colleagues cannot pay to him a better tribute than by reading with care and consideration his last annual report.

THE SCHOOL MEDICAL SERVICE

IN his twenty-sixth Annual Report on the School Medical Service the Chief Medical Officer of the Board of Education recalls the purpose and

design of the School Medical Service. It is to improve the health conditions, both personal and in regard to environment, of the children of the nation and aims at the physical improvement together with the mental and moral improvement of coming generations. The School Medical Service is, therefore, administratively part of the public health service. By its foundation the Education Authority was provided with a means of ascertaining the physical condition of the children and thereby separating the defective child from the normal and healthy. There followed the making of arrangements for attending to the health of both these groups of children and finally a national advantage of great importance, namely, that the sick and the normal children have been better fitted to benefit from their schooling and their education has been more closely adapted to the needs of the individual child.

Nutrition of the School Child

The routine medical examination of school children is carried out by a staff of 1,340 school doctors associated with whom are 3,338 school nurses. Special attention is paid to the state of nutrition of the school children and experience has proven that undernourishment is not wholly due, as a rule, to insufficiency of food or economic circumstances. Of 1,855,499 children submitted to routine medical examination during 1933, 11.1 per 1,000 were found to be "malnourished" and requiring treatment. The figures for 1931 and 1932 were 11.2 and 10.7 per thousand, respectively. During 1933 the number of Local Education Authorities providing meals increased to 192, as compared with 174 in 1932. Provision of some kind was made by nearly all the large industrial towns. More than half the meals provided were in the form of milk. The provision of free meals

(including milk) is intended only for children who are unable by reason of lack of food to take full advantage of the education provided for them.

During the economic depression much interest has been aroused in the nutritional state of the English people and particularly of the children. Evidence, including that of the School Medical Service for 1933, is available which indicates definitely that the general health and nutrition of the population of England and Wales, taken as a whole, was well maintained in 1933. It has been found, as the result of medical examinations, that for many years at least 1 per cent of the children attending school are malnourished and that another 4 per cent are slightly undernourished. This does not indicate prevalence of the defect, although it is a serious defect of the child. In many schools a generation ago twenty-five per cent of such total undernourishment was frequently found. This has now been successfully reduced, though not abolished.

Physical Training

On the School Medical Service of the Local Education Authorities rests the duty of ensuring that every abnormal child is ascertained and treated; further, it is its business to ensure that every child, normal or abnormal, receives appropriate education in health and physical training. Any organized training has as its physiological purpose the increase in growth, strength and control of the body of each child and the increase and development of the physiological functioning of the body. The training must have regard to the age of the child. The revised Syllabus of Physical Training issued in 1933 by the Board of Education has been found of great value by the Local Education Authorities, the teachers and children alike. The value of open air exercise cannot be denied and school playgrounds should be large enough for really active exercise for at least a class of 40 or 50 children at a time. Swimming is a branch of physical

activity that is included in the Syllabus of the Board of Education. During the last two or three years there has been an exceptional extension of facilities for and training in swimming, one of the most valuable of all forms of physical training. Swimming has now become a recognized and well-established school activity.

The Teaching of Hygiene

The teaching of hygiene is making progress in the school curriculum and the handbook "Suggestions on Health Education", issued by the Board in 1933, has had a wide circulation and is proving of much value. In it is well illustrated the variety of means by which hygiene may be taught in schools.

The Pre-school Child

Attention is drawn to the importance of the care of the pre-school child. No means exist of organizing preventive measures for the child under five comparable to the School Medical Service for the child over five. Many children are, therefore, admitted to school with defects needing treatment. Defects among them have, however, happily declined from 23 per cent in 1925 to 16 per cent in 1933.

Hearing

Further investigations were carried out in 1933 with the gramophone audiometer on a large number of public elementary school children in and around the London area. The results showed that between 8 and 13.7 per cent, in different groups of children, failed in the test, the standard of failure being a loss of nine or more units in one or both ears. A somewhat exaggerated figure for the incidence of impaired hearing may be given by the audiometer, as a number of the children ascertained by it to have defective hearing revealed no clinical signs to account for the condition. On the other hand, there is no doubt that this instrument does detect a large number of cases of impaired hearing which would be missed by the methods of diagnosis in common use. The

application of the audiometer is limited as it necessitates the ability of the child to write down figures from dictation.

Partially Sighted Children

Attention is drawn to the Report of the Committee of Inquiry into "Problems relating to Partially Sighted Children". The committee recommended that the term "partially blind" should be replaced by the term "partially sighted" in relation to the definition of blindness under the Education Act 1921. In the report is formulated ophthalmic standards for the determination of such children. Partially sighted children are (a) those who, on account of defective vision, cannot follow the ordinary school curriculum but can see well enough to be taught by special methods involving the use of sight; and (b) those who are suffering from conditions such as myopia, which may be exaggerated by following the ordinary school curriculum. The desire is to make the education of the "partially sighted" children more "normal". The committee strongly condemn the practice of placing "partially sighted" children in blind schools and their being educated by methods applicable only to the blind, as on leaving school they are turned out into a sighted world ill-equipped educationally and socially.

Unemployed Boys and Girls

The new Unemployment Act that came into force in 1934 contains several clauses affecting school leavers. It lays down that the minimum age for entry into unemployment insurance instead of being 16 years shall be the age, not being less than 14 years, when a child leaves school. This bridges the gap of two years during which the majority of boys and girls on leaving school passed out of the range of supervision and guidance provided by the organizations specially set up to advise and assist them during the early years of industrial life. The Act makes it a statutory obligation of the Education Authori-

ties to provide courses of instruction for unemployed boys and girls between leaving school and 18 years of age. The Minister of Labour may require these boys and girls to attend such a course and their attendance may be enforced in the same way as attendance at school. The object is to prevent the demoralization which threatens unemployed boys and girls with nothing to occupy their hands or their minds.

HOUSING

SINCE the war, there has been a succession of Acts of Parliament passed with the object of improving the housing conditions of the working classes in Great Britain, both by increasing the number of houses available for them and by repairing and reconditioning those houses found to be unfit and below modern standards. The progress made under these various enactments has not come up to the needs of the situation, due, in large measure, to the complexity of the problem and the cost of its solution. The provision of houses to let at rents within the compass of the most poorly paid worker failed so long as the authorities insisted upon an economic return for the money expended.

The Housing Act, 1930

The Housing Act of 1930 introduced new State subsidies with the object of overtaking the housing shortage for the lowly paid worker and new machinery came into force for the abolition of slums and individual unfit houses. Before much could be done under this Act, however, a halt was called on account of the financial situation of 1931 and for two years housing remained practically at a standstill. In 1933 the work of slum clearance and the measures for improvement of housing conditions were revived. Coincidentally with this a considerable reduction in building costs occurred and private enterprise was called in to make good the deficiency of houses. At the same time, local

authorities were discouraged from erecting houses so as to prevent competition and give private enterprise every possible chance. In spite of this, private enterprise has failed to produce the houses required, due no doubt to the realization by private business men that even with reduced building costs, housing of the poorer working classes is unprofitable.

The Housing Bill, 1934

Arising out of these circumstances the Government has laid before Parliament a new Housing Bill, which throws the responsibility of making good the housing shortage upon the local authorities, for although the bill deals principally with overcrowding, it is to be remembered that overcrowding and house shortage are one and the same thing, because few families overcrowd wilfully.

The approach to the problem of house shortage via overcrowding has necessitated the introduction of a new feature in British housing law, namely, the setting up of a legal standard of overcrowding. Hitherto there has existed no legal standard laying down the number of persons who may occupy a house of known size, although overcrowding of a dwelling house has been a legal nuisance under the Public Health Acts since 1875.

The standard sought to be established under the Housing Bill of 1934 is, roughly speaking, that there shall be sufficient accommodation in any house to permit of no more than two adults sleeping in a room, and for the purpose of the calculation a living room shall be counted as a room available for sleeping. The standard also requires that persons over 10 years of age and of opposite sex who do not live together as man and wife shall not require to sleep in the same room. In all calculations, children under the age of 10 years shall count as a half adult, while children under one year are ignored. Rooms under 50 square feet in area are not taken into account.

These standards are not as high as many housing enthusiasts would have

liked, but it is likely that their application will reveal the extent of the housing shortage to be considerable, and if the final result is the erection of large numbers of houses available at rents to suit the more poorly paid workers, no mean contribution will have been made towards the solution of the housing problem in this country.

The Methods of the Bill Outlined

The initial step to be taken under the bill when placed upon the Statute Book will be a nation-wide survey as to the extent of overcrowding based on the standard laid down. When this is completed, local authorities will be required to submit to the Minister of Health programs for the erection of houses or flats to abate the overcrowding which has been ascertained.

Subsidies from Government sources will be available, to which moneys the local authorities will have to add at least fifty per cent. These grants in aid will form the nucleus of a pool which will be completed by the rents obtainable from the tenants and it is hoped that, with the present building costs, rents will be kept down to a level within the capacity of the poorly paid workers.

In recent years the efficient management and control of working-class houses has received considerable attention in this country and under the Housing Bill before Parliament, a Housing Advisory Commission is to be set up having as one of its functions the proffering of advice to local authorities upon all aspects of the subject of housing.

The work of slum clearance, the demolition of individual unfit houses incapable of being rendered fit, and the repair of other unfit houses will go on as before under the Housing Act, 1930. This work is, of course, no contribution to one of the most serious housing problems, namely, the shortage of houses for the working classes, and the new Housing Bill is therefore welcomed as a means whereby this urgent social problem may at last be solved.

LABORATORY SECTION

A TECHNIQUE OF RAPID AGGLUTINATION WITH *B. TYPHOSUS* A PRELIMINARY REPORT

E. P. JOHNS, M.D., and A. R. K. MATTHEWS, B.A., M.D.

*Department of Pathology and Bacteriology, Faculty of Public Health,
University of Western Ontario, London*

MACROSCOPIC slide agglutination methods have been on record since 1910 when Coca¹ described a technique which he had found efficient in identifying cholera vibrios. Krumwiede² used a similar method successfully in the identification of a number of organisms, including *B. typhosus*. Both of these investigators used potent immune sera to identify unknown organisms. In 1910 Bass and Watkins³ reported a macroscopic slide method of performing the Widal test. Noble⁴, in 1927, described a rapid agglutination test performed in small tubes, and demonstrated the value of using a concentrated antigen suspension, and the effect of shaking in accelerating agglutination. Huddleson⁵ combined certain features of these various methods in elaborating a rapid macroscopic slide agglutination test for the diagnosis of infection with *Brucella abortus*. This test has been in use for several years with satisfactory results, and the specificity of the reaction has been confirmed by other observers^{6,7,8}. It is a method which has several advantages in that it is performed with undiluted blood serum, and that its results are obtained easily and rapidly.

The agglutination reactions used in the diagnosis of *B. typhosus* infection at the present time include the microscopic Widal test and the standard macroscopic agglutination reaction. The microscopic Widal is of definite value when a diagnosis is required urgently, but it has many limitations. It demands considerable care in the selection of appropriate cultures. The dilution of the blood, if a dried specimen, is, at best, only an approximation. Very often it is difficult to read satis-

factorily and in some cases may give non-specific results⁹. The standard macroscopic agglutination reaction, in which equal quantities of diluted serum and preserved standardized antigen are mixed in small tubes and incubated for a period of time, is the method of choice, but it is usually 12 to 24 hours before final readings are made. In view of these circumstances we have attempted to modify Huddleson's technique and adapt it to the diagnosis of infection with *B. typhosus*.

APPARATUS

1. The illumination box is 26 inches long, 10 inches wide and 6 inches deep. The top is covered partially by a three-inch strip underneath which two electric lamps are attached. The portion of the box below and behind the electric lamps is painted white, while the remainder is painted black.

2. Glass plates are made of double diamond window glass 13 by 6½ inches. One surface of each plate is marked into inch squares by a diamond pencil. Two of these plates fit over the open portion of the illuminating box.

3. Dropping pipettes are made of thick-walled glass tubing ⅛ inch bore, which is drawn out to a capillary point and cut off at 0.07 diameters as measured by a B. and S. wire gauge. Each pipette is calibrated to deliver 0.03 cc. in each drop.

PREPARATION OF ANTIGEN

Blake flasks of two per cent plain agar media are inoculated with an 18 hour broth culture of a smooth Bender strain of *B. typhosus*. The flasks are incubated at 37°C. for 48 hours. The growth is washed off in 0.85 per cent saline (NaCl) solution containing 0.5 per cent phenol, using about 15 cc. of saline for each flask. The washings are filtered through a thin layer of cotton to remove any gross portions, and saturated aqueous gentian violet is added to the filtrate in the proportion of 0.01 cc. to each 100 cc. of filtrate. This constitutes the stock antigen, which, before being used, is tested with known immune and negative sera. The results obtained should compare satis-

factorily with those given by the formalinized standard macroscopic antigen with the same sera. It is not essential, however, that the results with the two methods be exactly parallel, since the sensitivities of the two reactions are not comparable. Donham and Fitch,^{10,11} working with abortus rapid antigen, advise against such standardization, and we have found that moderate variations in the concentration of the antigen have but little effect on its sensitivity. All that is necessary is that both antigens give specific

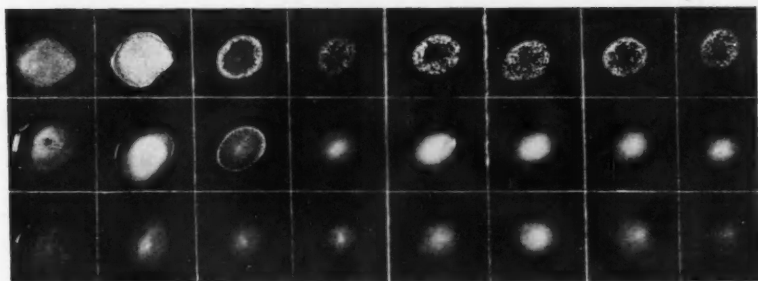
Agglutination is recognized readily, but only complete or nearly complete agglutination is considered when readings are made. (See Figure I.)

TECHNIQUE OF MACROSCOPIC TUBE METHOD (SLOW METHOD)

Dilutions of blood serum ranging from 1-12.5 to 1-1600 are prepared in small test tubes. An equal amount of formalinized typhoid antigen suspension is added to each tube, doubling the original dilution. The

FIGURE I

RESULTS OF THREE TESTS USING THE RAPID METHOD



Readings are made from the left. The upper row demonstrates complete agglutination throughout, the middle row agglutination in the first four dilutions, and the lower row no agglutination.

results with known sera. The stock antigen is stored at ice-box temperature and appears to remain stable for long periods of time, at least six months.

TECHNIQUE OF RAPID METHOD

Undiluted blood serum is deposited in separate squares on the glass plate in the following amounts: 0.08 cc., 0.04 cc., 0.02 cc., 0.01 cc., 0.005 cc., 0.0025 cc., 0.00125 cc. and 0.000625 cc. The antigen is shaken thoroughly and one drop from the standardized dropping pipette added to each amount of serum. The above mixtures of undiluted serum and antigen contain amounts of serum corresponding to the following 2 cc. dilutions of the slow agglutination method: 1-25, 1-50, 1-100, 1-200, 1-400, 1-800, 1-1600, 1-3200. The contents of each square are mixed intimately by a wooden applicator, beginning with the smallest serum amount and proceeding to the largest. Then the plate is lifted and tilted gently back and forth for 30 to 60 seconds to agitate the serum-antigen emulsion and facilitate clumping. After this it is placed on the illuminating box, and the results read almost immediately. The time required for the entire test does not exceed five minutes.

tubes are shaken well, incubated in a water bath at 37°C. for at least four hours and then overnight in an ice-box. The tubes are read the following morning, and left at room temperature for an additional day, after which the results are checked finally.

RESULTS

Our findings are based on results obtained by both the above methods on 434 specimens of blood. The patients are divided into three groups: (1) 221 febrile patients not suffering from typhoid fever, (2) 129 patients following T.A.B. vaccination, and (3) 84 proven cases of typhoid fever.

(1) Febrile Non-typhoid Group

These specimens include 221 blood samples which have been submitted to the laboratory for agglutination tests. We have been unable to obtain definite histories on many of these cases, but it seems reasonable to assume that they were obtained from patients having some symptoms suggestive of typhoid fever, but in whom a final diagnosis

of some other infection was made. The results are tabulated in Table I.

or over. We were able to obtain histories on these specimens. In three cases the pa-

TABLE I*
SLOW AND RAPID MACROSCOPIC AGGLUTINATION REACTIONS
GROUP OF 221 FEBRILE NON-TYPHOID PATIENTS

			Rapid Macroscopic Agglutination Reaction								
Number of			147	7	14	25	13	7	5	0	3
Tests	Titre	Neg.	1-25	1-50	1-100	1-200	1-400	1-800	1-1600	1-3200	
Slow Macroscopic Agg'n Reaction	65	Neg.	53	2	2	5	2	1			
	42	1-25	30	1	3	3	3	2			
	62	1-50	39	3	5	8	2	2	2		1
	29	1-100	18	1	2	4	2	1	1		
	20	1-200	6		2	5			2		
	3	1-400	1				3	1			1
	0	1-800					1				1
	0	1-1600									
	0	1-3200									

*Note:—This and the succeeding tables are interpreted in the same manner: Two upper horizontal columns show the number of rapid tests and the corresponding results. Two left vertical columns show the number of slow tests and the corresponding results. The remaining vertical and horizontal columns give a comparison of the results of one type of test with those of the other type.

These results show several significant features. It will be seen that only 53 specimens out of 221 were negative with both tests, the remainder all showing agglutinins in variable amounts. In a group of this type it is quite usual to have a certain number of specimens showing some agglutination, due to previous infection,¹² immunization with vaccine^{12,13}, or some unrelated infection^{14,15,16,17}. It will be noted, however, that 147 rapid tests gave negative results while only 65 slow tests did likewise, a fact which suggests that the rapid method is highly specific.

tients had typhoid fever within six months previous, while in four others there was a history of either previous typhoid or prophylactic vaccine therapy. These findings suggest that the rapid reaction has a high degree of sensitivity.

2. Group of Persons Previously Vaccinated

This group includes 129 patients resident at the Ontario Hospital, London, who are known to have received T.A.B. vaccine within a period of three or four months previous to submission of the blood samples. The results are summarized in Table II.

TABLE II
SLOW AND RAPID MACROSCOPIC AGGLUTINATION REACTIONS
GROUP OF 129 PERSONS WHO PREVIOUSLY RECEIVED T.A.B. VACCINE

			Rapid Macroscopic Agglutination Reaction								
Number of			2	0	1	2	9	19	17	25	54
Tests	Titre	Neg.	1-25	1-50	1-100	1-200	1-400	1-800	1-1600	1-3200	
Slow Macroscopic Agg'n Reaction	0	Neg.									
	0	1-25									
	3	1-50	1	1				1			
	12	1-100	1				6	1			2
	41	1-200				2	3	9			15
	42	1-400					3	6	12		14
	21	1-800						7	3		18
	7	1-1600				1			3		3
	3	1-3200							1		2

On the other hand, none of the slow macroscopic agglutination reactions gave a titre higher than 1-400, while eight rapid tests showed agglutination in titres of 1-800

In this group also, there is further evidence indicating a high degree of sensitivity on the part of the rapid test. Of the rapid reactions, 74.4 per cent gave titres of 1-800

or over, with 41.9 per cent showing complete agglutination in a titre of 1-3200. In the slow macroscopic reaction only three tests showed complete agglutination in a dilution of 1-3200, while 76 per cent of the reactions gave titres of from 1-50 to 1-400.

(3) Clinical Typhoid Group

This group includes 84 patients with proven typhoid fever, and the results with the two methods are summarized in Table III.

TABLE III
SLOW AND RAPID MACROSCOPIC AGGLUTINATION REACTIONS
GROUP OF 84 CLINICAL CASES OF TYPHOID FEVER

		Rapid Macroscopic Agglutination Reaction									
Number of		2	0	0	0	1	0	1	8	72	
Tests Titre		Neg.	1-25	1-50	1-100	1-200	1-400	1-800	1-1600	1-3200	
Slow Macroscopic Agg'n Reaction	0	Neg.									
	1	1-25	1								
	3	1-50	1			1			1		
	0	1-100									
	4	1-200									
	14	1-400						1	2	1	
	16	1-800							3	11	
	17	1-1600							2	14	
	29	1-3200								17	
										29	

These results indicate a high sensitivity on the part of the rapid technique, 72 of the tests showing complete agglutination in a titre of 1-3200, while only 27 of the standard tests gave complete agglutination in the same titre. Two of the rapid tests gave negative results, but in these instances the patients had been ill only four and six days respectively and subsequent tests were strongly positive.

DISCUSSION

A consideration of the above findings appears to establish quite definitely that the rapid agglutination reaction is very sensitive to specific agglutinins produced by either clinical typhoid fever or prophylactic T.A.B. vaccine. In each of the three groups the rapid method has given a greater proportion of complete agglutinations in higher titres than the slow method. At the same time it is apparent that this is a specific reaction, as in the miscellaneous group the rapid test failed to show agglutination in 66.5 per cent of the tests, while only 29.4 per cent gave negative reactions with the slow method.

Another question that must be considered is whether or not there can be established a serum amount with which the occurrence of agglutination of the rapid antigen will be diagnostic of clinical typhoid infection. Here, as in all typhoid agglutination tests, the interpretation of results requires consideration of the duration of illness

and of the history in relation to previous typhoid infection or vaccine prophylaxis. Our findings, at present, do not justify any definite conclusion as to a diagnostic titre. Eighty-five per cent of the clinical typhoid cases, however, gave complete agglutination in a titre of 1-3200, which was the highest titre prepared. All other tests which gave agglutination in the same high titre have histories of either recent typhoid fever or vaccine immunization. It does seem probable, therefore, that a higher diagnostic titre should be adopted for the rapid technique, because of the increased sensitivity of the rapid antigen.

The interpretation of agglutination tests has become more complex. Recent publications^{9, 10, 19, 20, 21, 22, 23} on the agglutination reaction have emphasized the value of testing for the O and the H agglutinins in differentiating between reactions due to clinical infection and those due to prophylactic vaccination. It appears likely that the rapid antigen, as we have prepared it,

would respond more actively to H agglutinins. The presence of phenol is said to suppress O agglutination,²⁴ and the rapid antigen contains 0.5 per cent phenol. Again, the rapid antigen has reacted to very high titres with the sera from vaccinated individuals, and several observers^{18, 19, 20, 21, 25} state that vaccine administration produces a preponderance of the H agglutinin. Experiments are in progress to determine, if possible, whether the rapid antigen responds to one or both types of agglutinins.

The rapid technique, in our experience, is commendable because of its simplicity and the rapidity with which the results are obtained. The actual performance is very easy, agglutination is distinctive and clearly discernible. We believe that the reaction is specific, and that further investigation is merited on its possibilities as a useful method in the diagnosis of typhoid fever.

SUMMARY

1. A rapid macroscopic agglutination test for diagnostic purposes in typhoid fever is described.

2. The results are shown as obtained with 434 blood samples using the rapid and the standard agglutination methods.

3. The rapid technique appears to be sensitive and specific.

4. The rapid technique is simple to perform, and the results are available almost immediately.

5. The rapid test may prove to be

a distinct aid in the serological diagnosis of typhoid fever.

REFERENCES

- ¹Coca, as cited by Kolmer, "Infection, Immunity and Biologic Therapy", Saunders, Philadelphia, 3rd Ed., 1924, p. 284.
- ²Krumwiede, Kohn, Kuttner and Schumm, *J. Inf. Dis.*, **23**: 275 (Sept.), 1918.
- ³Bass and Watkins, *Arch. Int. Med.*, **6**: 717 (Dec.), 1910.
- ⁴Noble, *J. Bact.*, **14**: 287 (Nov.), 1927.
- ⁵Huddleson and Abell, *J. Inf. Dis.*, **42**: 242 (Mar.), 1928.
- ⁶Lienhardt and Kitselman, *J. Am. Vet. Med. Ass.*, **73**: 328 (July), 1928.
- ⁷Palmer and Baker, *J. Am. Vet. Med. Ass.*, **75**: 86 (July), 1929.
- ⁸Welch and Mickle, *J. Lab. & Clin. Med.*, **18**: 627 (March), 1933.
- ⁹Gilbert and Coleman, *Am. J. Pub. Health*, **23**: 693 (July), 1933.
- ¹⁰Donham and Fitch, *J. Inf. Dis.*, **53**: 98 (July-Aug.), 1933.
- ¹¹Donham and Fitch, *J. Inf. Dis.*, **51**: 162 (July-Aug.), 1932.
- ¹²Rosher, *Lancet*, 215: 461 (Sept. 1), 1928.
- ¹³Dreyer, Walker and Gibson, *Lancet*, **188**: 324 (Feb. 13), 1915.
- ¹⁴Baehr, *J. Inf. Dis.*, **21**: 21 (July), 1917.
- ¹⁵Nichols, *J.A.M.A.*, **81**: 1946 (Dec. 8), 1923.
- ¹⁶Kilduffe and Hersohn, *Am. Rev. Tuberc.*, **19**: 223 (Feb.), 1929.
- ¹⁷Gilbert and Coleman, *J. Inf. Dis.*, **46**: 311 (Apr.), 1930.
- ¹⁸Felix, *J. Immunol.*, **9**: 115 (May), 1924.
- ¹⁹Burnet, *Br. J. Exp. Path.*, **5**: 251 (Aug.), 1924.
- ²⁰Stuart and Krikorian, *J. Hyg.*, **23**: 105 (Nov.), 1928-29.
- ²¹Gardner, *J. Hyg.*, **28**: 376 (Feb.), 1928-29.
- ²²Eldering and Larkum, *Am. J. Pub. Health*, **21**: 1370 (Dec.), 1931.
- ²³Dulaney and Wikle, *J. Immunol.*, **24**: 235 (March), 1933.
- ²⁴Felix and Olitzki, *J. Hyg.*, **28**: 55 (Aug.), 1928-29.
- ²⁵Dulaney, Wikle, Stewart, Rayfield, Walker and Preacher, *J. Immunol.*, **24**: 229 (March), 1933.

BOOKS AND REPORTS

What You Should Know About Heart Disease. By Harold E. B. Pardee, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical School; Associate Attending Physician, New York Hospital, etc. Second edition, thoroughly revised. Published by Lea & Febiger, 600 S. Washington Square, Philadelphia, 1935. 127 pages, illustrated. Price, \$1.50.

Heart disease is a leading cause of illness and death in the community and an important public health problem. The main purpose of the author in writing this book was to enable the patient who has heart disease to understand his condition and to help him to follow intelligently the directions of his physician. To this end this little volume will be very helpful.

The author describes the heart and its action in simple language and gives a lucid account of heart disease, its causes and symptoms. The sections dealing with the "outlook for a patient with heart disease", "exercise and rest" and "prevention", are particularly commendable.

The author has succeeded in presenting a medical subject in a clear and helpful way so that everyone who reads may understand. It will be of value to physicians and to their patients as well as to those other persons who wish to learn something about heart disease, its prevention and control.

A.H.S.

Proceedings of the Twenty-Eighth Annual Convention of the Association of Life Insurance Presidents, New York, N.Y., December, 1934. 240 pages.

The keynote of the twenty-eighth annual convention of the Association of Life Insurance Presidents, which represented sixty-three million policy holders, was "Serving America through life insurance". This theme symbolizes the broad objectives of life insurance in the community—cooperation and service toward the protection and conservation of human life.

The report includes a group of eleven main addresses delivered to the convention. One of these, "Life Insurance in the Service of America's Health", by Dr. R. A. Fraser, indicated four ways in which the Association could assist in improving the health and prolonging the lives of the people. These four ways were by public health education, provision of facilities for periodic health examination, better contact be-

tween insurance medical directors and medical practitioners, and grants-in-aid to laboratories and clinics which are investigating the causes of disease.

A detailed index to the proceedings of this and previous conventions, and a list of the publications of the Association which are available on request, are appended.

A.H.S.

Sex-Hygiene. What to teach and how to teach it. By Alfred Worcester, M.D., Sc.D., Henry K. Oliver Professor of Hygiene, Harvard University. Published by Charles C. Thomas, 220 East Monroe Street, Springfield, Illinois, 1934. IX + 134 pages. Price, \$2.50.

Of all the aspects of hygiene, that concerning sex is the hardest to teach, for the task requires not only knowledge but also wisdom. Though many possess the first quality and fewer the second, the subject is one on which all should be adequately informed, for on each of us is laid the burden of teaching others, whether we like it or not, and whatever our vocation.

This wise and human book should help many, for it gives guidance in what should be taught, and how it should be taught. In a dozen essays and addresses, a like number of phases of the subject are discussed openly and frankly, leaving the reader with a sane appreciation of the privileges and responsibilities of his or her sex. The author has sought and considers he has found a physiological basis for sexual morality, without any reference to the origin of moral law. "It is in the trusteeship of the germ-plasm, obligatory on all of us . . . that I believe can be found a physical basis for sexual morality. If I am right in this belief, all questions of what is right or wrong in sexual conduct . . . must be decided by this test, namely, whether such conduct favours or jeopardizes the welfare of the germ-plasm." This approach should not offend the devout and should appeal strongly to the rationalist, for it is a sane and scientific point of view.

The author has handled a much tortured subject as the normal thing it should be, neither pathological nor sinful, but essentially human. His book is to be commended and should prove of the highest value to all intelligent people, in no matter what profession, and especially to parents, teachers, clergymen and physicians.

G.R.W.

Annals of the Pickett-Thomson Research Laboratory: Monograph XVI, Part I.—Influenza. By David Thomson and Robert Thomson. Published for the Pickett-Thomson Research Laboratory by Baillière, Tindall and Cox, 7 and 8 Henrietta Street, Covent Garden, London, W.C. 2, 1934. 640 pages. Price, \$10.00.

In many ways this imposing volume is the best of the monographs which have issued from the Pickett-Thomson Research Laboratory. An enormous number of papers have been written about the pestilence which "in one year alone (1918-1919) killed 20 million human beings and attacked probably 500 millions." The authors have not attempted to collect and sift all that has been written on influenza but they believe that they have covered practically all the available information of value in the 4,000 papers which they have abstracted. In order to deal adequately with these papers it was found necessary to publish the monograph in two parts, the first of which occupies 640 quarto pages. Part one is a mine of information, well written, arranged and co-ordinated and the authors are to be congratulated on the successful outcome of their gigantic task.

The monograph commences with sections on the nomenclature and history of the disease. These are followed by accounts of the epidemiological features of pandemic and inter-pandemic influenza, institutional influenza and influenza in an isolated community.

The clinical character, clinical varieties and symptoms of influenza are next dealt with and there is an excellent summary of data concerning the symptoms arranged under appropriate headings. Sections on differential diagnosis and prognosis follow.

One hundred pages contain a wealth of information on the incidence and mortality statistics of influenza. The question of the etiology of influenza occupies more than the latter half of the volume. The role of Pfeiffer's bacillus in influenza is adequately dealt with and the authors add some observations of their own. They point out the fallacies and erroneous nature of statistics arising from the use of faulty technique, faulty culture medium and the desire to examine large numbers of cases. They lay stress on the importance of symbiosis on the pathogenicity of Pfeiffer's bacillus. The role of streptococci, too, receives detailed discussion and further sections deal with the role of other organisms, including the pneumococcus, bacterium pneumosintes and others. The authors sum up their conclusions thus:

"The impression we have gained from our own extensive bacteriological researches and from a very careful scrutiny of the enormous literature on the subject is that no bacterium

has yet been incriminated definitely as the primary cause of true pandemic influenza. We are strongly inclined to accept a filter-passing virus as the primary cause. This point should be definitely decided soon as a result of the very important discovery by Smith, Andrewes and Laidlaw that ferrets are susceptible to the disease.

"There is one important fact, however, which we consider is already clearly and definitely proved. This is that whether or not a virus is the primary cause, the disease very quickly becomes a symbiotic infection in which bacteria play the most important and dangerous role.

"All are agreed that Pfeiffer's bacillus, the pneumococcus group, and certain of the streptococci are the cause of the fatal complications such as broncho-pneumonia, empyema, and meningitis, as well as the cause of the less fatal complications such as nasal sinusitis, otitis media, etc. It should therefore be a solace to the great host of researchers who have worked so hard and patiently on the bacteriological aspect of the problem that this very important knowledge has emerged as the result of their accumulated endeavours."

The remainder of the volume is devoted to the filter-passing theory of influenza and an account of influenza in animals.

The appearance of this work shortly after the publication by Smith, Andrewes and Laidlaw of their account of transmission of a virus from human influenza cases to ferrets is very timely. All who are interested in influenza, physicians, laboratory workers and epidemiologists, will surely feel indebted to the authors of this monograph.

J. C.

Ideal Health or The Laws of Life and Health. By Alexander Bryce, M.D., C.M. (Glas.), D.P.H. (Camb.). Third edition, 1935. Published by the Macmillans in Canada, St. Martin's House, Toronto. 340 pages. Price, \$1.50.

Ideal Health is an intriguing title for any book. The sub-title explains the author's treatment of the subject. The scope of the book is indicated in the following chapter titles: Food, Drink, Work, Rest, Air, Exercise, Cleanliness, Clothing, Regularity and Moderation, The Influence of Mind on the Body, and Eugenics.

Few physicians have the ability or are willing to undertake the task of explaining to laymen how the body functions and to give personal health teaching. Dr. Bryce presents the essential facts, coloured as one would expect by his personal experience and his enthusiasm for observance of the laws of health.

R.D.D.

CURRENT HEALTH LITERATURE

These abstracts are intended to direct attention to articles that have appeared in other journals during the past month. Any of the journals referred to may be borrowed for three days or longer if desired. Address requests to the secretary of the Editorial Board.

Vaccination against Acute Anterior Poliomyelitis

Based on the hypothesis that active immunization against anterior poliomyelitis can be accomplished only when living virus is employed, Dr. Kolmer and his associates have employed sodium ricinoleate as a means of attenuating the virus. The vaccine consists of a 4 per cent suspension of the spinal cords of inoculated monkeys showing typical paralysis in a sterile 1 per cent solution of sodium ricinoleate. The vaccine is stored for at least two weeks before use. That the vaccine still contains living virus is evidenced by the development of poliomyelitis after a rather prolonged incubation period in monkeys receiving the vaccine by intracerebral injection.

The authors report the results of vaccination of 25 children with this vaccine. In this group of children local reactions of varying degrees occurred at the sites of injection. During the first 24 hours after injection, and especially after the first injection, the temperature was slightly elevated, only occasionally rising as high as 100° F. The leukocyte count showed an increase of from 500 to 1,200 in some children. Tests were conducted to determine the presence of neutralizing antibodies as early as one week after the last dose of vaccine. In 21 of the 25 inoculated, neutralizing antibodies were present in the final serum tests.

The authors believe that the vaccine is safe for human administration, stating:

"Not only is it quite likely that the remote passage virus employed has lost some if not all infectivity for human beings but is certainly attenuated to some extent by the sodium ricinoleate employed. Furthermore, subcutaneous injections appear to add another very important factor of added safety, as it represents a portal of entry in which virulent virus itself has a very low rate of infectivity for monkeys. In addition the injection of such a small first dose as from 0.25 to 0.5 cc. to children and adults and waiting at least a week before the second dose is given adds another important factor of safety, since it appears that antibody response is prompt."

John A. Kolmer et al., *J.A.M.A.*, 104: 456, 1935.

Diphtheria in Hull, England

Various places in England have had outbreaks of diphtheria in the last few years that are characterized by unusually high incidence and mortality rates, e.g., Leeds, Hull and Liverpool.

Hull has had severe outbreaks of the disease since 1929. The only outbreak comparable in mortality rates and incidence since 1891 was in 1905-1907. Approximately 1,700 cases occurred in 1932, with a mortality rate of 42 per 100,000. Immunization was commenced in 1927 but in the five years to December, 1932, only 849 were treated. The authors compare the experience of Hull with that of Montreal where in 1933 52,063 persons had been immunized and the death rate had been simultaneously lowered from 28 in 1928 to 2 in 1933.

It is suggested that the high diphtheria morbidity and mortality in Hull have been due to the marked incidence of *gravis* strains of diphtheria bacilli. Of a series of 310 cases of all grades of severity, 59 per cent showed this strain. Of the 40 toxic deaths in this series 35 were due to *gravis* and 5 to *intermediate* strains. In Hull the *intermediate* type was found to be intermediate in clinical severity. In this it differs from those strains in Leeds and other places. The *mitis* organism is rarely found in Hull and is associated with mild and non-toxic cases. It is stated that the striking feature of these *gravis* infections is the extremely rapid course of the toxæmia.

Nicholas Gebbie and H. Mason Leete, *Pub. Health (Eng.)*, 48: 173, 1935.

The Future of Public Health Nursing

The future preparation of the public health nurse should not differ fundamentally from that of any other nurse because all should receive the same basic training. The development of public health nursing must depend in the future on the effective application of knowledge to health organization; the provision of nursing for those otherwise unable to secure it; post-graduate affiliations in paediatrics, obstetrics, communicable diseases and mental hygiene; more refresher courses; more adequate training in obstetrics; provision for home helpers or visiting housekeepers.

Regarding educational provisions, the author believes that the one-year public health nursing courses should be continued and that university public health training should continue to be the usual requirement for a public health nursing position.

Present instruction in obstetrics is inadequate. "Some plan should be evolved whereby more intensive training in obstetrics can be obtained; not to launch midwives as such, but as occasion demands to be able to send to such districts as require her a type of individual who would really be primarily an exceptionally well qualified public health nurse, yet who incidentally might serve in an emergency."

In speaking of health insurance as a future possibility it is pointed out that very few insurance plans include nursing as an essential part of their scheme; for example, the National Insurance Act of Great Britain already in force for twenty years does not yet include a nursing benefit except in the case of a few approved societies.

An appeal is made for better trained teachers in schools of nursing who are imbued with the public health viewpoint. The future nurse should be trained to recognize her patient as a member of a family and of a community and to study his illness in relation to its cause and effect and not merely in respect to his bedside treatment.

Elizabeth L. Smellie, *Canad. Nurse*, Nov., 1934.

The Control of Occupational Diseases by Laboratory Methods

In a general review the author points out the importance of the development of laboratory methods for the assessment of industrial health hazards. The laboratory methods at present in use are divided into three main classes: (1) analysis of air samples, (2) testing the efficiency of protective devices, and (3) clinical tests made on body fluids of industrial workers to determine the characteristic reactions obtained on exposure to deleterious substances. The application of these methods to a number of the more important industrial poisons is briefly discussed.

C. O. Sappington, *J. Indust. Hyg.*, 17: 21, 1935.

Tuberculin Tests in the District of Julianehaab, Greenland

Clinical examination of samples of the population of Greenland has shown that 10

to 17 per cent suffers from tuberculosis and it has been estimated that one-half of all deaths caused by illness are due to this cause. Mantoux tests made on 866 Greenlanders in Julianehaab showed a progressive increase in the number of positives with age: 7 per cent at 6 months, 20 per cent at 1 year, 35 per cent at 2 years, and 46 per cent, 58 per cent, 65 per cent and 80 per cent at 3, 4, 5 and 10 years, respectively. In the age group 14-19, 99 per cent were positive. Eighty per cent of the positives were found to react with 1/200 mg. and the other 20 per cent with 1/10 mg. Eighty-five per cent of a group of contacts with open cases of tuberculosis in the same house gave positive tuberculin tests, as against only 59 per cent of persons with no contacts with tuberculosis in the same house. The data show that "as expected, tuberculous infection takes place almost exclusively within the house." Bovine tuberculosis was found to be rare, all but one of the test herd being found non-tuberculous.

Leif Folke, *Acta Tuberc. Scand.*, 8: 283-295, 1935.

Bacterial Methods in the Diagnosis and Control of Whooping Cough

This is a progress report of the work in Grand Rapids, Michigan, where diagnostic cough plates are being taken by public health nurses. In the first week 78 per cent of the plates were found to be positive, in the second week 64 per cent, in the third week 62 per cent, fourth week 32 per cent, fifth week 15 per cent, and in the sixth week 3 per cent. With this information, release from isolation was permitted on the 28th day if 2 negative cough plates were obtained between the 21st and the 28th day. By this plan 57 per cent were released in the 4th week and only 10 per cent remained positive after the 5th week. The authors have prepared pertussis vaccine according to Sauer's method, with certain modifications. Sheep's blood was employed in the place of human blood and, contrary also to Sauer's findings, they report no loss in antigenicity in washing the vaccine. They employed Merthiolate, 1:10,000 dilution, or 0.5 per cent phenol to kill the organisms. Essential points in selecting cultures and the method of standardization of the vaccine are outlined.

P. Kendrick and G. Eldering, *Am. J. Pub. Health*, 25: 147-155, 1935.

and
ll
is
n-
ve
th
at
er
nt
ne
e.
nd
20
nt
of
ve
nt
u-
at
es
,"
re,
n-
95,

nd

in
tic
lth
he
he
ek
th
ek
ase
th
ed
his
lth
ive
re-
r's
p's
an
gs,
sh-
ate,
to
ect-
za-

Pub.